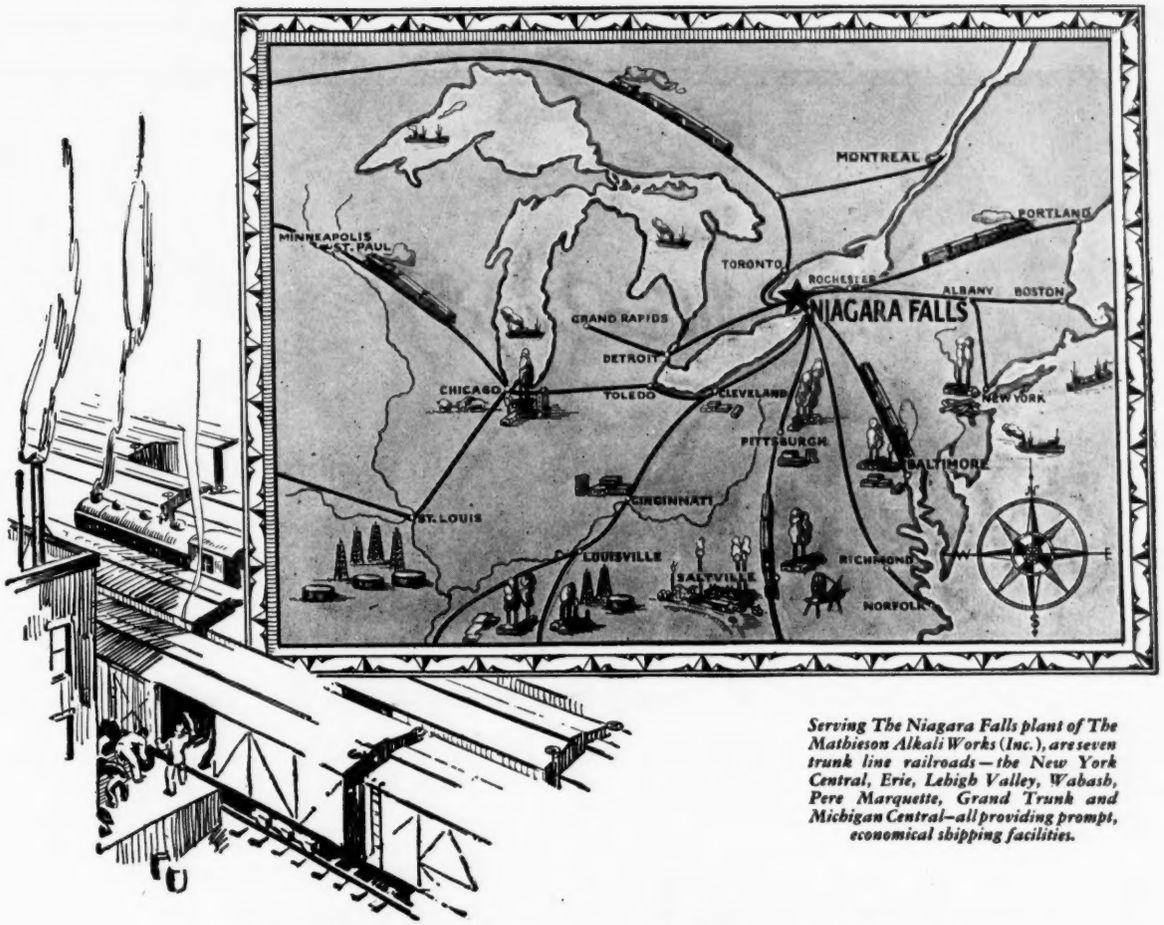

Serving The Niagara Falls plant of The Mathieson Alkali Works (Inc.), are seven trunk line railroads—the New York Central, Erie, Lehigh Valley, Wabash, Pere Marquette, Grand Trunk and Michigan Central—all providing prompt, economical shipping facilities.

At Industry's Door Step—

With the Mathieson plant at Niagara Falls as a central point, draw a circle with a radius of four hundred miles and you have marked the heart of Industrial America.

But strategic location at the crossroads of industry is just one of the facilities for service that Mathieson offers purchasers of industrial chemicals. From the Niagara Falls plant seven trunk line railroads keep Mathieson products moving smoothly and promptly—regardless of whether the demand is for quick shipments to meet an emergency, or for regular consignments to fill quantity contracts.

The EAGLE-THISTLE trade mark is a widely recognized symbol of this service. In purchasing industrial chemicals it signifies utmost value in product and utmost efficiency in service.

CAUSTIC SODA
LIQUID CHLORINE
BICARBONATE OF SODA
MODIFIED VIRGINIA SODA
SODA ASH
BLEACHING POWDER
ANHYDROUS AMMONIA
AQUA AMMONIA

EAGLE-THISTLE PRODUCTS

The MATHIESON ALKALI WORKS *Inc.*

250 PARK AVE. NEW YORK CITY

PHILADELPHIA CHICAGO PROVIDENCE CHARLOTTE CINCINNATI

MATHIESON
Industrial
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Works:
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Producers of Commonwealth Vanillin, Coumarin, Benzoate of Soda, Benzoic Acid and Benzoyl Chloride

DEAL DIRECT WITH THE MANUFACTURER

Shipments

We are shipping to buyers who use many carloads and to some who use only a single cask of Bichromates a year. We appreciate each one. Should we restrict our shipments to carload lots, we would lose valuable friends of long standing. It is our pleasure to take care of buyers' requirements from a single cask to many carloads.

MUTUAL CHEMICAL CO. of AMERICA

270 Madison Avenue, New York, N. Y.

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"Mutualize Your Chrome Department"

1928

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FOR nearly a century the traditions associated with the name of Kalbfleisch have been a source of satisfaction to our customers. Each succeeding year they are born anew. Identified with them are integrity of manufacture, old fashioned principles of business dependability, products of uniformity --- well serviced. Contributing further to their significance, are Kalbfleisch plant and distributing resources, important in scope and location.

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NITRIC ACID
SULPHATE of ALUMINA
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SULPHATE OF SODA
GLAUBER'S SALT
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FOR NEARLY A CENTURY

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Skill acquired by the production of many millions of pounds of ANILINE and NITROBENZENE in the past decade is responsible for strict product-uniformity. Diligent research by du Pont Chemical Engineers during that time has yielded such important improvements in quality as to establish new standards of PURITY.

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of interest to Buyers of

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AN affiliation has been consummated whereby the resources and organization, both technical and sales, of the J. T. Baker Chemical Co. have been placed solidly behind the Taylor Chemical Co.; and although Taylor Carbon Bisulphide has built up an enviable reputation for itself, it will now have the added strength of the Baker organization. The Baker Chemical Co. will be directly responsible for the sale of all Carbon Bisulphide produced by the Taylor Chemical Co.

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You will find our prices competitive whether you buy a single drum, a carload or contract for annual requirements running into several million pounds.

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Phillipsburg, New Jersey

Graybar Building, N. Y. C — 2213 S. La Salle St., Chicago

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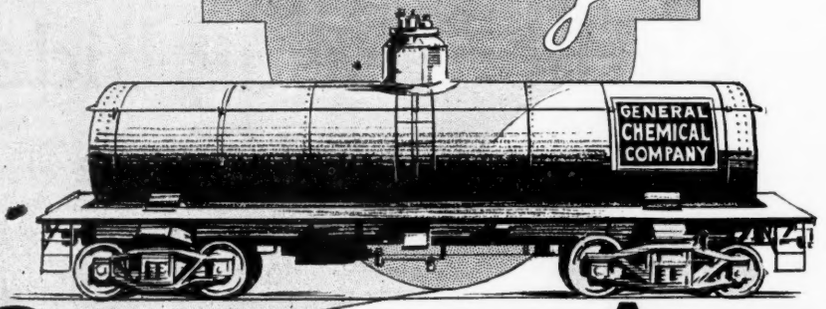
Dependable Chemicals

Standard Purity



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OIL OF VITRIOL—OLEUM—MIXED ACID—BATTERY ACID

This Company is also a principal producer of

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Quantity production is both cause and result of Standard Purity. Because our manufacturing is so highly developed, and expertly controlled, we are able to establish and maintain quality standards which command preference for General Chemical Company Acid. Because of this trade preference we are constantly improving our facilities in advance of need, to maintain our recognized standard of delivery service.

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The Quality of GDC

dyestuffs never disappoints

THERE is no compromise with quality in the production of G D C dyestuffs. It is this surety of excellence—this knowledge that the dyestuff factor in your processes is reliable—that appeals to discerning users.

GDC dyestuffs have established a particular standard which makes them truly representative of quality.

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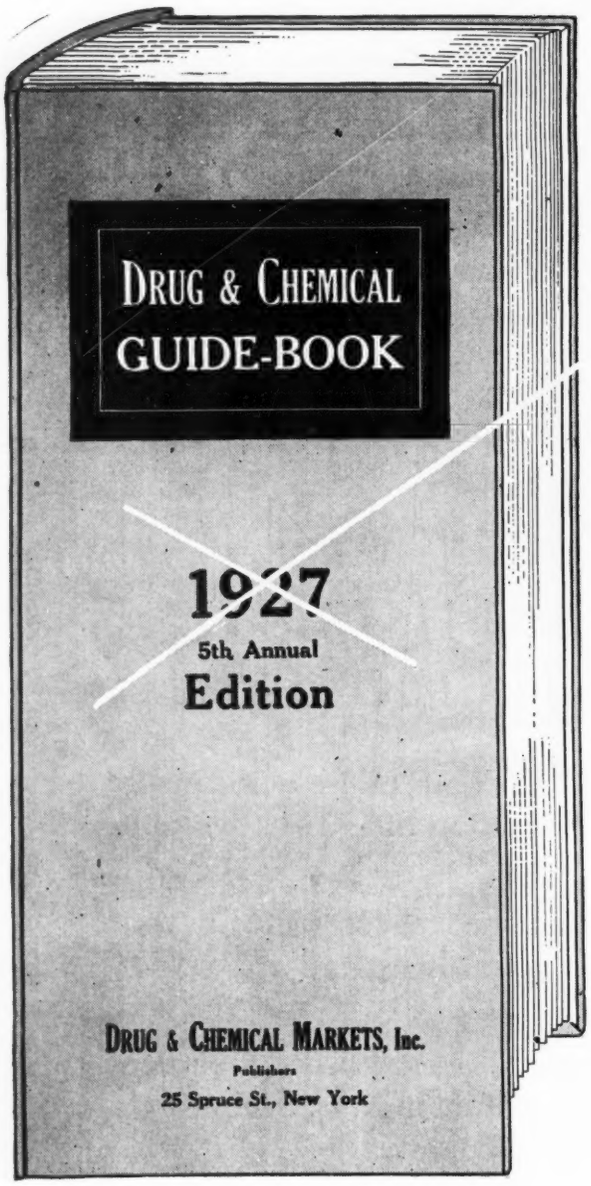
GENERAL DYESTUFF CORPORATION



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6th Annual 1928

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ALCOHOL THROUGH THE AGES . NUMBER VII

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In Tahiti, one of the Polynesian Islands, the processes of distillation have been known for many centuries, yet no industrial development has grown out of this knowledge. In common with so many countries in the world, the marvels of distillation are applied, mainly, for private purposes.

Ava, their national liquid, is made from the Ti root in a Still similar to the type illustrated above, and is consumed from beakers of Calabash. No tax is placed on the making or selling of Ava, but those who tarry too long over their Calabashes are allowed to repent while working out a fine on the roads or fences of the Government.

* * * *

As we study the distillation of alcohols in various parts of the world, we find that the principal effort has been directed toward the personal rather than the industrial angle. Long before Alcohol became strictly industrial in the United States the Kentucky Alcohol Corporation was supplying the needs of American Industry.

KENTUCKY ALCOHOL CORPORATION

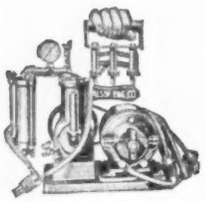
30 BROAD STREET * * * NEW YORK CITY

Address Sales Representatives, Listed in Our Former Advertisements, and Those Which Follow, for Your Industrial Alcohol Needs.

NOTE: This is number SIX of a series of advertisements which will appear in this and other trade publications. We have had so many comments and requests for copies of these advertisements that we have decided to issue the entire series in booklet form, after they have appeared in the publications. As the edition will be limited to the number of requests on hand at the time of publication, we invite you to write for your copy now—it will be sent FREE when the booklet is completed. Address the Kentucky Alcohol Corporation direct, or any one of our sales representatives, whose names appear regularly in this space.

Hy-Speed

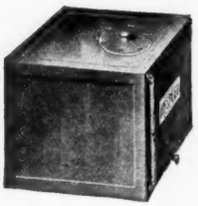
VACUUM BOTTLE FILLERS



The speed, simplicity and portability of Hy-Speed Bottle Fillers are saving hundreds of users valuable time. They operate from any light socket, saving installation cost and floor space. Trained operators unnecessary. They fill bottles more rapidly and uniformly and are the lowest in price.

"BLU GLASS" GLASS-LINED TANKS

Coated inside and out with an acid-resisting glass enamel, baked into the steel, our wide range of tanks for storage, mixing and other purposes are ideal for the liquid chemical manufacturer. In all sizes from 5 to 150 gallons capacity. Round or square in open or closed types. Also in steam jacketed models.



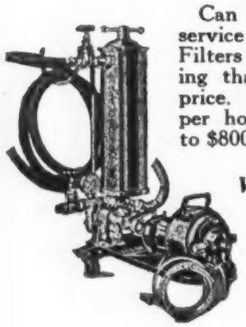
LEADERSHIP

In the manufacture of machinery and other equipment for the production of liquid chemical products, the Alsop Engineering Company stands supreme in:

1. **Completeness and Variety of Line.**
   There is a "Hy-Speed" machine for practically every liquid process.
2. **Volume Production and Sales.**
   Over 25,000 "Hy-Speed" products already sold have reduced our overhead and your cost.
3. **Originality of Design.**
   Every "Hy-Speed" machine represents an advance in efficiency of design.
4. **Dollar for Dollar Value.**
   Distribution of production costs over 27 separate items enables us to give you the best equipment at lowest cost.
5. **Servicing the Product.**
   There is no more complete or rapid service available on any product.
6. **Sound Technical Counsel.**
   Our staff of engineers are always at your command for solution of difficulties and advice on new processes.

THESE SIX POINTS OF RECOGNIZED SUPERIORITY
WILL SAVE *YOU* TIME AND MONEY

Internal Pressure Filters



Can be cleaned and restored to service in less than two minutes. Filters more material without cleaning than any filter of its size or price. Capacity up to 300 gallons per hour. Other models from $8 to $800.

Portable Electric Mixers

Are standard equipment in every liquid mixing process. Their advanced design insures a more thorough mix in much less time. They clamp to any tank, operate from any light socket, last longer and cost less.

Write for catalog of Glass Lined Tanks, Pumps and other "HY-SPEED" Liquid Handling Equipment.

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SALES EXECUTIVE

Will Entertain A Desirable Connection

A CLIENT OF MINE, a seasoned and highly successful Sales Executive, desires to open negotiations for his services.

His experience has been diversified, though his abilities have largely been devoted to the chemical and allied fields. Preference would be given one of these fields, for it is here that he has established a record of which any one would be proud. Also, he has a wide and valuable acquaintance in the chemical consuming industries.

Here indeed is a man of unusual attainments.

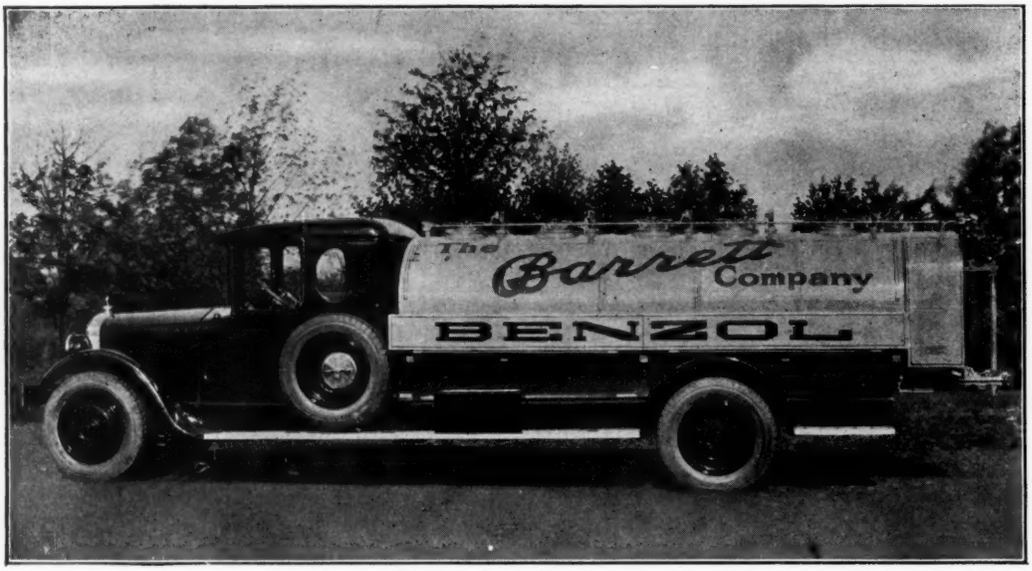
The position now held by him is excellent in salary return, yet does not permit of the full exercise of his ability nor capacity for work. In fact, it is considered such a good position that he would have to be "sold" on the potentialities of a new connection and the salary would have to be substantial.

He would be the ideal man to take charge of the sales work of a concern which finds itself in a rut; or any concern which would benefit by a directing hand possessing enthusiasm, energy, and proved ability.

Preliminary negotiations
can be opened
through
me

Wm. C. Longstreet, Attorney at Law, 15 Exchange Place, Jersey City, N. J.

Barrett TANK-WAGON SERVICE!



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CHEMICAL MARKETS

Edited by
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Business Manager

AUGUST KRESS
Production Manager

M. A. SLUTH
Subscription Manager

VOL. XXII. JANUARY, 1928 NO. 1.

Government Out of Business.

FOR a variety of reasons it is perfectly natural that in an easy going way the average man in business should accept at a little better than face value any proposal that bears the stamp of the Government's approval. While it is easy to understand why this should be so, nevertheless the chemical industries have had ample reason to regret their lack of analysis and foresight in scrutinizing these matters.

CONSIDERABLE sums of money have been appropriated in various Government bureaus to do research work that has already been done—oftentimes abandoned—or which is already under way in private laboratories. Government officials are called upon not only by members of Congress and their friends, but even by successful corporations to do work that is certainly not a public service. The agents of the Tariff Commission abroad have aroused antagonism, particularly in chemical fields, which any shrewd, farsighted sales executive could easily have foreseen. To take a more recent incident the restriction of the production of an important group of chemical manufactures by a Government officer—however expedient this may be temporarily—sets a precedent that a moment's thought shows is fraught with danger.

WE are continually reminded that there is too much Government in business. As President Allen of the Mathieson Alkali Works said recently, "Congress might well spend the next five sessions in cancelling, in simplifying, in recodifying the laws of the land now on the statute books without passing a single new piece of legislation to the inestimable benefit of every person in the country." And yet our industries not only make more and more demands upon the Government, not only do they let pass without question huge appropriations for investigations, reports and what not, but they even allow the Government without protest to embark upon all sorts of expeditions along the fringe of industry.

IF we are to be consistent in our demand that the Government keep out of business as much as possible, is it not incumbent that we should be more critical of this multitude of proposals that come out of Washington? Our business men should scrutinize them with business eyes and ask—What will they accomplish? What do they cost? What will their effect upon business be?

DETROIT PUBLIC LIBRARY

FORTY PER CENT.

No manufacture should undertake to market a new chemical product until certain that his plant costs are forty per cent. below those of his most efficient competitor.

First, it is a reasonable rule to discount an additional five per cent. the best cost which you will allow to a competitor. Second, it is more than likely that, pressed by competition, he will be able to cut his production costs, due to experience, skill, or improvements developed but not yet used, another five per cent. Third, an established producer, fighting in his own market, may be safely counted upon to slash off ten per cent. of his profit in the battle to hold his own trade. Here is a total of twenty per cent. to be allowed to one's competitor.

Selling expense—be it spent for extra sales effort to break into the market or given away in cut prices to induce buyers to change their source of supply—selling expense will be ten per cent. higher for the new producer. The final ten per cent. is due the industry and the manufacturer, for there is no economic logic (there being an actual over-plant-capacity of practically all chemical products) in undermining the chemical industry's structure, unless the new comer is able to make a decent manufacturing profit for himself.

If these rigid restrictions upon additional output, either from new plants or for new products from existing plants, were enforced, they would do more to steady and strengthen the American chemical industry than any consolidation of companies or all the tariff laws. They are, moreover, the plainest of sound common-sense. It is far easier to make a new chemical than to sell it at a profit. The treasurer and sales manager have a perfect right to demand this leeway of forty per cent. from the chemist and the superintendent. This is the habit—the company policy—of one big chemical corporation which over many years has established a highly enviable dividend record.

TIME AND EFFORT

There are 8,760 hours in a year, of which a good average citizen spends 5,110 sleeping, eating, playing, with an additional 210 hours for vacations or holidays and 520 hours for Sundays. The balance left for work is 2,920 hours. An industrious analyst has calculated that the average chemical salesman works but a six hour day, wasting 920 hours. If he makes no calls Saturday, another 520 hours must be subtracted. Some 450 hours are wasted between calls—leaving a net of 1,030 hours actually spent selling customers.

Having checked over these figures for themselves, four sales managers were surprised to discover that this calculation of the net productive working hours of their men is rather liberal. Taking 1,000 real selling hours as a convenient average, it is simple arithmetic to figure what any salesman is costing the company per hour.

The result of applying these elementary mathematics to the specific personal equation is rather shocking. "Holy juniper!", one executive exclaimed, "it costs us a quarter every time Bill Jones stops to fill and light his pipe!" And every sales department head threw down his pencil with some more or less vigorously phrased resolution to speed up his staff.

True, a salesman is of effective value to his company only while in actual contact with customers and prospects, but coaxing or bullying him into spending more hours per year in the actual presence of buyers is not the only way of lengthening his selling hours. True, also, that selling chemicals, as Mr. Howry says elsewhere in this issue, is more and more selling a certain chemical effect or reaction rather than selling a chemical product. Buyers purchase a result rather than a cause, which increases many-fold the service aspects of chemical sales. And selling service requires more knowledge, more skill, and much more time than selling commodities.

Hence the personal effort of the salesman should be concentrated on these aspects of salesmanship. All that can be saved him in introducing his company, winning confidence, assuring the prospect of prompt delivery, fair dealing, and honest representations is lengthening his effective selling hours. This necessary introductory and explanatory work can all be done quicker, cheaper, with greater authority, and in every way more effectively through printed word in proper mediums. Advertising will not only win your sales representative a more prompt and favorable reception, but it will cut the time of his calls, while increasing the volume of his orders. The more far-sighted, ambitious salesmen realize this and the pick of the industry's representatives strongly prefer to work for a house that advertises, wisely, consistently, persistently. The shrewdest sales managers are using advertising to win and hold such men and to increase the profitable, effective time of their calling hours.

DEVELOPMENTS AND DIVIDENDS

Investments in any chemical process industry are always subject to the assaults of science, and several bankers have of late been accusing research of destroying industrial values more quickly than it creates new assets. The financier learns only with difficulty that oftentimes scrapping a process will be profitable. Their traditional worship of invested capital makes it more difficult for them than for the business man to appreciate that often such progress is indeed the price of profits.

These dividend destroying changes, which the bankers bewail, seldom drop like a bolt out of a clear sky on the heads of either the investor or the chemist, or the industrial executive. The last few years have seen several most revolutionary changes through chemistry in industry, but most of them are very old chemical ideas. All of them have long been forecast in chemical patent literature; some of them have rested for years dusty and forgotten on laboratory shelves; others have been peddled up and down industry's highways and byways by hopeful inventors.

By the same token, there are literally scores of fruitful ideas, hundreds of potentially profitable chemical facts already discovered and docketed; some of them tested; many of them available for industrial exploitation. But their use, unless the world changes overnight, is not going to be immediate.

These thoughts are not new. The history of the slow, gradual chemical development of industry is well known within chemical circles. It furnishes a perfect answer to this latest criticism which has been leveled against applied chemistry; but these thoughts are especially pertinent at this time when chemical progress is so rapid. It is not enough that our chemical leaders should adapt themselves to changing conditions, it is not even sufficient that they should foresee the steps to be taken immediately in the future; they must have a broader, more far-sighted vision not only to be able to create the new values of industrial chemistry, but also to be forewarned against the destruction of the markets in which to-day they are directing their sales effort.

SPEAKING OF COMPETITION

When the Druachem Club disbanded a couple of years back most of these younger men in the drug and chemical trades moved over in a body to membership in the New York Press Club. The fruits of this transplanting are just come to harvest as evidenced by the advertisement on page 79 of this issue. We welcome this new and already esteemed contemporary with open arms, although we must discount a mite his protestations that he will not compete with us. He will, so he says, have no paid circulation. The price of our product is two dollars a year, and we submit to you, gentlemen, that for quality, appearance, delivery, and service our goods are quite without—etc., etc.

To return to our salutations: we like the cut of our new contemporary's jib. We believe he will prove well worth his price. And, for one, we shall risk a post card.

BELGIUM'S CARTEL

Not to be outstripped by its neighbors, Belgium has fallen into line with its own chemical merger.

Reports from Brussels tell us of the formation of Union Chimique Belge by the combination of four of the powerful manufacturers there. This merger is by no means as all embracing as its counterparts in other countries and while reports point out that Belgium plays but a minor role in the production of dyestuff and therefore but limited advantages could be derived from its joining an all European combine, the news follows to closely on the heels of the Franco-German-British negotiations to convey any other impression than that an eventual alliance with these latter factors is the ultimate aim of this most recent of European chemical combinations.

Two interesting announcements of personnel changes have been made within the past few weeks. The newly formed Battelle Memorial Institute has taken a long step in the right direction by appointing Dr. Gerald B. Wendt as director. Dr. Wendt is at present connected with Pennsylvania State College which position he has resigned effective July 1 this year.

The Vanadium Corporation has secured the services of Jerome Alexander to direct the workings of its new ventures. Mr. Alexander by his many years experience in various phases of chemistry is an ideal selection for the post.

All success is wished these very capable chemists in their new responsibilities.

They Say:——

"But nothing could be less correct than to speak of a world chemical trust. This is both an industrial and political fallacy. Recently an outcry has been heard in America that a European chemical trust is being formed to offer direct competition to America. Such a suggestion is very far from the truth. We have already concluded agreements with large American petroleum firms and are prepared to come to mutually advantageous arrangements with other branches of American chemical industry. We hope, indeed, that the day will soon come when American opinion will begin to regard German chemical industry in a more sympathetic and appreciative manner."— *Dr. A. von Weinberg of the I. G.*

"Let me say at once that, although trade competition for world markets is inevitable, the thought of any spirit of suspicion or anatagonism between the two great English-speaking peoples of the world is regarded here as unthinkable. In scientific no less than in political circles, the policy of friendship with America is taken for granted, and no policy based on any other spirit would receive any support from the people of this country." *F. E. Hamer, editor "Chemical Age," (London).*

"Production in the United States is now on the point of exceeding consumption. They are menaced by a crisis which is economic and perhaps social, if the actual living conditions are not maintained. Whence arises the necessity of finding foreign markets without, of course, reducing American protection, with the risk of increasing the very products which they wish to sell."—*M. Gignoux, quoted in L'Ind. Chim. Nov. 1927.*

"We insist—that the United States should cease investigating the manufacturing plants of the French producers, exporting to the United States, for the purpose of determining the cost of production. We ask also the suppression of the increase in duty on cyaniamdes, calcium, crude chlorides and nitrates."—*L'Ind. Chim., Nov. 1927.*

"Nowadays if a chemist is to succeed it is necessary that he be as much a man of business and a man of the world as a chartered accountant and a licensed analyst."—*R. Leslie Collett.*

"If we take as rough criteria of the strength of a monopoly the proportion of product controlled and the availability of substitute commodities, potash ranks at present ahead of rubber, though the prospects of alternative sources are perhaps less problematical in the latter case. Chile's monopoly of crude nitrate is of course modified in effect by alternative methods of obtaining the essential product, of which she accounts for only 40% of world consumption; the relative inelasticity of demand applies therefore only within a certain (low) price range. The Japanese camphor control is subject to considerable limitation both from other geographical sources and the synthetic process."—*William Orton in the American Economic Review, Dec. 1927.*

"What many of the American newspapers have characterized as an offensive alliance against America is a natural consequence of the extremely bad European post-war economic position, and whilst it may react upon the American chemical industry, there is no reason why a scheme for a greater unification of the European chemical industries should cause offence."—*Editorial Jour. Soc. Chemical Industry.*

"Chemical quantitative analysis is the art of chemistry. *Why* you analyze them is the science of chemistry."—*Charles F. Kettering.*

"Give me the British Empire, and I will produce more than the Americans ever dreamt of."—*Sir Alfred Mond.*

Ten Years Ago

(From "Drug and Chemical Markets" January 1918)

Three hundred and twenty-two flasks of quicksilver stolen from consignments made to Haas Bros., New York.

E. I. du Pont de Nemours & Co. purchases land in Chicago upon which the company plans to erect a large plant for the manufacture of dyestuffs.

Merck & Co., increases capitalization from $250,000 to $1,000,000.

Nitro Chemical Co., New York, buys Canadian Car & Foundry's Co's plant at Kingsland, N. J.

Heller & Merz, Newark, incorporated under the laws of New Jersey with capital stock of $1,500,000.

President Wilson issues proclamation declaring that licenses must be obtained for importing, storing, manufacturing, and distributing ammonia, ammoniacal liquors, or ammonium sulfate.

Whittaker, Clark & Daniels, New York, incorporated with capital of $100,000.

Castor oil importers, manufacturers and dealers plan to organize association to co-operate with government to foster production and regulate distribution.

United States Industrial Alcohol Co., acquired distillery of Clarke Bros. & Co., Peoria, Ill.

Piedmont-Mt. Airy Guano Co., Baltimore, lets contract for construction of $60,000 fertilizer plant.

Cambria Steel Co.'s Johnstown, Pa., benzol plant burns.

New York section, Sociate de Chimie Industrielle, holds first meeting.

National Aniline & Chemical Co. leases Century Color Co.'s Burling Slip building, New York.

Domestic Tariff Policy vs. Bargaining Tariffs

By Carl R. DeLong[1]

Apropos of the recent tariff negotiations with France, a practical study is made of our $3,575,822 chemical exports to France, and our imports of $12,928,670 worth of chemical products from that country, after which Mr. DeLong concludes: first, that our flexible tariff is no defence against the European bargaining tariffs; second, that our tariff investigators abroad should be recalled, and third, that rates should be based on the selling price in American markets.

OUR tariff policy of equality of treatment as compared with the bargaining tariff policies of European countries has been brought into the lime light through the recent negotiations with France. While our trade with France involves only some $264,000,000 of exports to France and some $152,000,000 of imports from that country, the principle involved is of much greater significance when viewed from the standpoint of our future trade relations with other countries. The discussion raises the question as to the policy which this country shall pursue in future tariff revisions and in negotiating commercial treaties with foreign countries.

The question is not a new one in the history of our tariff and commercial policies. The Tariff Commission has made an exhaustive and careful study of the problem, which is presented in its report on "Reciprocity and Commercial Treaties." This report points out that the United States in the past had not followed a continuous policy in its commercial relations with other nations. While we started out with the idea of equality of treatment for all countries, this country made separate arrangements which resulted in inequality of treatment and led to troublesome complications not adequately compensated by the relatively small advantages secured. The Tariff Commission concluded that since the United States is committed to wide participation in world politics, a clear and uniform policy should be adopted and followed, and "the guiding principle might well be that of equality of treatment." The concluding paragraph of the Commission's recommendations reads as follows:

> Finally, it can not be too much emphasized that any policy adopted by the United States should have for its object, on the one hand, the prevention of discrimination and the securing of equality of treatment for American commerce and for American citizens, and, on the other hand, the frank offer of the same equality of treatment to all countries that reciprocate in the same spirit and to the same effect. The United States should ask no special favors and should grant no special favors. It should exercise its powers and should impose its penalties, not for the purpose of securing discrimination in its favor, but to prevent discrimination to its disadvantage.

The report of the Commission points out that equality of treatment may be secured by concessions or by the imposition of retaliatory duties against the trade of countries which fail to give the United States satisfactory treatment. The granting of concessions in return for equality of treatment has the disadvantage that the concessions must be extended to all countries under the principle of equality of treatment. The Tariff Commission at that time (1919) recommended the early enactment of legislation authorizing the imposition of new or additional duties at the discretion of the President as the best method of securing fair treatment for the trade of the United States. These recommendations were embodied in the Tariff Act of 1922 in Section 317, which has played an important part in the recent negotiations with France.

Flexible Tariff No Solution

The French Government has suggested the "flexible" provision of our existing tariff law should be used to reduce the duties on certain French imports in return for France extending to us the minimum

[1] Federal Phosphorus Co., Birmingham, Ala.

rates of her tariff. This has raised the question whether the flexible tariff is a sufficient legal or economic answer to the bargaining tariff policy commonly practiced in Europe. By the flexible tariff is meant that portion of the present act (Section 315) which gives the President authority to increase or decrease duties by 50 per centum, if warranted by a comparison of costs of production.

Flexible Tariff No Weapon

In my opinion the flexible tariff provisions are no answer to the bargaining tariff policies of Europe, nor do they offer a solution of any tariff differences that may exist between our Government and that of France. These provisions were not designed for this purpose, but were introduced as a step towards a scientific adjustment of tariff duties on individual commodities based on costs of production. They were not intended as an instrument to be used in broad commercial negotiations between the United States and foreign countries. A few examples will serve to illustrate the futility of any practical results under the flexible tariff in the present negotiations with France.

Let us assume that it is the desire of our Government to grant lower duties on imports of important commodities from France in order to secure the minimum duties of France on our exports to that country. Some of our principal imports from France are perfumery and cosmetics, argols, olive oil, glycerine, and vanilla beans. In the case of argols and vanilla beans, there is no production of importance in the United States. While it has not been publicly announced, the Tariff commission in the past has construed the law so that no action is possible under the flexible tariff in the case of articles which are not produced in the United States since the requirement of Section 315, namely a comparison of costs of production in this country and the "principal competing country," cannot be satisfied.

In the case of olive oil, France would not be the principal competing country and the duty would be determined on the basis of costs in this country as against those in Italy or Spain. Furthermore, it is likely that such a cost comparison based on our insignificant production of olive oil would result in increased duties rather than in a decrease, the desired objective.

Indefinable Perfumery Values

The case of perfumery and cosmetics offers a practically impossible situation from the standpoint of the flexible tariff. The thousand and one brands and formulae of perfumery make a satisfactory cost comparison impossible. Moreover, the question of comparability of the domestic and French perfumes would be an insurmountable obstacle. This question of comparability of goods has prevented any action in the investigation of laces by the Tariff Commission in which case France was the principal competing country. As compared with perfumes, lace becomes a simple problem. To some extent at least the value of a lace depends on design and materials, the comparability of which with other laces can be measured to some degree by inspection. The value of a perfume on the other hand depends largely on the ephemeral qualities of odor, woman's fancy, and the superficial value creating by brand advertising. To attempt to evaluate and compare American and French perfumes would be hopeless.

The only conclusion that can be drawn from a consideration of the chemical commodities involved is that the flexible tariff holds little promise of usefulness in any negotiations for an amicable settlement of the tariff differences between France and this country.

The same objections would apply with almost equal force to other commodities. It is a rather anomalous situation to have France suggest the use of the flexible tariff provisions, when she has been the most insistent in protesting against the activities of representatives of the Tariff Commission in attempting to secure costs of production in those cases where France was the principal competing country.

Section 317 Effectively Used

As has been pointed out, Section 317 was incorporated in the existing tariff act upon the recommendation of the Tariff Commission as the best method of securing equality of treatment for the foreign commerce of the United States. It gives the President the power to levy new or additional duties (not exceeding 50 per cent. ad valorem) against the commerce of any country which has discriminated against the trade of the United States.

Section 317 may be designated as a warning to other countries not to apply to American products the same exaggerated bargaining rates they apply to products of countries which meet their high rates with equally artificial ones. The bargaining policy of continental Europe is to start with bargaining rates which bear little relation to the supposed need for protection; having thus penalized in advance the commerce of other countries they exchange so-called "concessions" and get down to bona fide protective and revenue rates. The United States has only one set of rates, but if European countries none-the-less insist on applying to its products their artificial bargaining tariff, Section 317 puts us in a position to meet on their own ground.

This provision has been used effectively in our exchange of notes with France, and was undoubtedly a factor in causing France to recede from her position of discriminating against our foreign trade.

Section 317 has been a law for over five years but this has been the first instance, at least to general public knowledge, in which our government has seen fit to use it even as a veiled threat. There have been and there still are countries other than France which discriminate against the trade of the United States

in the matter of unequal application of import duties. While these cases may not be as flagrant as the recent French action, we should not be placed in the position of using these provisions against one country and not another. There should be no discrimination in their use as the same principle is involved.

Section 317 charges the Tariff Commission with the duty of keeping itself informed and of bringing to the attention of the President any discrimination against the commerce of the United States. The annual report of the Tariff Commission for 1926 states:

> "Since the passage of the Tariff Act of 1922, reports have been submitted to the President pursuant to the provisions of Section 317 upon all important existing discriminations against the commerce of the United States by means of tariff rates and regulations."

Information is not generally available to the public as to what action, if any, has been taken in these cases; but it may be noted that a dozen or more unconditional most favored nation agreements have been negotiated, including several with countries which formerly discriminated against the trade of the United States. If this section of our tariff law is to be used as an effective instrument in securing equality of treatment for our foreign trade, it should be used without discrimination or favor.

Our Trade in Chemicals with France

The balance of our trade in chemicals and allied products (Group 8) with France is greatly in favor of that country; our exports to France in 1926 were $3,575,822, whereas our imports from that country were $12,928,670. Of these imports, those exempt from duty were valued at $5,341,210, whereas those which were dutiable amounted to $7,587,460.

Over 50 per cent. of our French exports was made up of two products—benzol ($1,041,891) and carbon black ($857,473). The more important chemicals imported from France are shown in the following tabulation:

	Dutiable	Free
Glycerin	$1,422,985	.....
Argols	992,815	.....
Cyanides	.....	$ 396,155
Ocher and sienna	266,176	.....
Potash	.....	3,683,763
Soaps	328,437	.....
Perfumery	2,039,716	.....
Perfume materials	816,798	1,103,638
Cosmetics	533,801	.....
Coal-tar dyes	240,731	.....
Total of Commodities listed	$6,641,459	$5,183,556
Grand Total	$7,587,460	$5,341,210

So far as our chemical trade with France is concerned, the products on which concession in duties might be extended are comparatively limited. The duty of five per cent. on crude argols could be removed without injury to any domestic industry, but this can be accomplished only by Congressional action. Any attempt to lower duties on perfumery and perfume concretes will result in bitter opposition from domestic interests, and, as has been pointed out, such a procedure is not feasible under the "flexible" tariff provisions.

The activities of representatives of the Tariff Commission under the "flexible" tariff provisions and of the agents of the Treasury Department in determining the proper valuation of imported goods for the assessment of ad valorem duties have aggravated unpleasant tariff relations between the United States and foreign countries. From the standpoint of European countries, the investigations of the Treasury Department have been the more obnoxious because of the powers which the Department has to exclude from the entry into the United States the products of any firm which refuses to allow inspection of its records. The Tariff Commission has no such powers; it is purely voluntary with foreign manufacturers whether or not they submit data upon costs of production required under the flexible tariff provisions. The French Government in one of its notes makes the point that "the American customs administration asserts as its right to resort to practices which the French law forbids to the French Government itself."

European Countries Resent Investigators

A cessation of activities of American customs and tariff investigators in foreign countries would do much to improve our foreign relations. Before this can be done modifications would have to be made in our basis of assessing ad valorem duties and in the basis of comparison under the flexible tariff provisions.

So far as assessment of duties is concerned, specific duties could be applied in all cases where feasible, thus reducing ad valorem duties to a minimum, and the remaining ad valorem duties could be assessed on either the basis of the United States value of the imported article or the American selling price of a similar or comparable domestic article. With the effort now expended abroad in determining foreign costs directed to ascertainment of selling prices in this country, ad valorem duties would be assessed on a much more accurate basis than is now the case.

The administration of the "flexible" tariff provisions is fast approaching the basis of comparing invoice prices of foreign articles with costs in this country. In fact the Attorney General has given as his opinion that the Tariff Commission may use invoice prices as indicative of foreign costs of production whenever foreign manufacturers refuse to divulge their costs. While the price at which foreign goods are sold in the United States is no true index of foreign costs of production, they are a true index of competitive conditions which must be faced by domestic producers. The flexible provisions of the tariff act might well be revised on the basis of a comparison of invoice prices of imported goods with costs of production in the United States.

The removal of tariff and customs investigators from foreign countries would go a long ways toward an amicable settlement of the present tariff negotiations between France and this country.

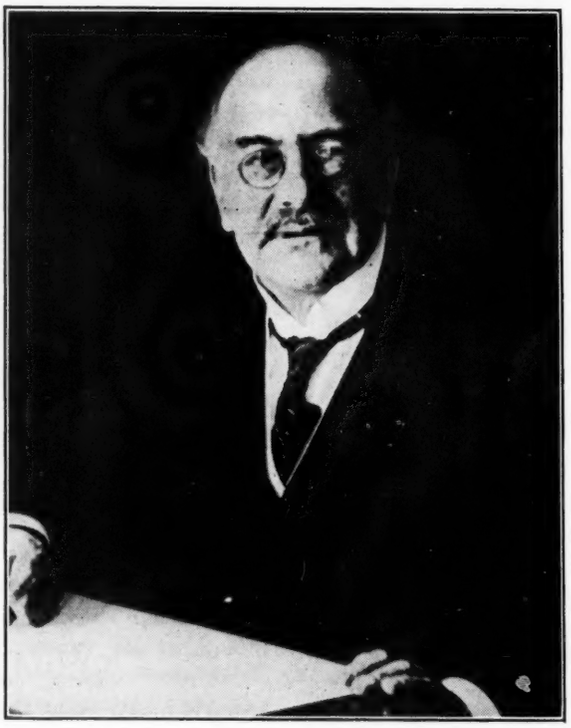
Sir Alfred Mond

reviews the

I. C. I. Ltd. Progress

IMPERIAL Chemical Industries, Ltd., the greatest merger in the history of British industry, is barely nine months old, and is becoming increasingly recognised as one of the main factors in Imperial trade and Imperial industrial relations. It is unnecessary to detail the many advantages of the process of amalgamations in industry. During the last twenty years the economic trend of industries throughout the world has been towards the growth of bigger and bigger units. In America the tendency has developed far more than in this country, and in Germany, owing sometimes to the concurrence, and sometimes almost to the compulsion of the government, cartels have increased in number.

When the strength and advantages of this economic tendency were investigated it was decided that the chief chemical and allied producers in this country should form, not a cartel, but a complete amalgamation or merger. It was felt that successful as the histories of the individual companies had been, and prosperous as the whole industry was under the existing conditions, in order to ensure the supremacy of the British chemical industry throughout the Empire, it should form one indivisible whole, capable of negotiating or combating upon equal terms with the already amalgamated industries in America and Germany.



When the Chairman of the great British chemical consolidation speaks of the closely amalgamated industry in America, the average American chemical manufacturer must feel very like the darky who was asked to change a ten dollar bill and who replied, "Deed, ah can't, boss, but ah thanks you fo' de' compliment." But Sir Alfred's summary of his company's activities and his plans for its future as set forth recently at the Central Economic League, will not fail to raise far different feelings.

Any industry which competes in the world's markets must keep up with world economic tendencies. The chemical industry has done so, and will continue to do so. For, by the pooling of financial and other resources, by the pooling of information and research processes, by forming a united front in the markets of the world, in all directions, in industry, in finance, in production, in distribution and in salesmanship, economies could be effected which would increase the prosperity of the industry, increase the prosperity of the consumer, whether intermediate or end, and allow that higher standard of living which all desire to see applied to industrial workers.

The chemical industry plays such an important and predominant part in all industrial developments that the two statements "Chemicals form the foundation of the world's industries" and "The chemical industry is essential to Imperial security" require elaboration rather than justification. The extraordinary amenities and comforts of modern life are so much taken for granted that everyone does not realise the great debt which we all owe to the development of modern industry and the chemical industry in particular.

The standard of comfort enjoyed by the average working man of to-day is greater than that of a wealthy and powerful nobleman of the Middle Ages.

Such a state of affairs may well be called a miracle, and it is largely due to the modern industrial system, in which chemicals play such an important part. If we analyse the ordinary doings of the ordinary man throughout the twenty-four hours, we find that all the objects with which he deals and most of the food he eats have come at some time or other within the province of chemical industry.

Our company can fairly claim to be representative of the industry as a whole. The volume of our production is enormous; in some of our industries such as the alkali trade we discuss our outputs in the terms of hundreds of tons per day. And in those industries such as dyemaking, where the tonnages are naturally not so heavy, the output, in its class, is very high indeed. The list of our products if I were to read it to you would take hours. Our four main constituent companies, Brunner, Mond & Co., Ltd., Nobel Industries, Ltd., British Dyes, and the United Alkali Co., Ltd., have a total of seventy-five constituent and associated companies. Our total production amounts to millions of tons per annum, worth scores of millions of pounds in value; our dyes and intermediates total over 5,000 alone, and we make other chemicals and explosives in every imaginable variety. Our consumption of raw materials is enormous, the amount of coal we burn, though you may be assured that every device is employed to do this as economically as possible, runs into hundreds of thousands of tons per annum. Again, we quarry millions of tons of limestone every year.

The Nitram Ltd. Organization

We employ about 40,000 men, among whom the importance of a small army of chemists and engineers must not be forgotten. We ransack the Universities for talent, and have even been accused of unduly depleting them! Our works are distributed throughout the country, and our selling organisation covers the whole earth. You will find our products in every corner of the British Empire and in remote villages in the centre of China. Our latest selling organisation for fertilisers is very interesting, as it combines an efficient business agency with a research and information bureau. I am alluding to Nitram, Ltd. The production of artificial fertilisers will falsify the prediction of Malthus, and will undoubtedly prevent what would have been a world famine in future years.

Nitram is an organisation of imperial and world propaganda whose business it is to make known the use and value of the new fertilisers. Already it has a large staff of district advisers in all parts of Great Britain, whose sole duty it is to give free and disinterested advice to farmers not only on nitrogenous fertilisers, but on fertilisers of all kinds.

The alkali trade can fairly claim to be dealing with the raw material of raw materials. The reason that the public is unaware of its extent and importance is that its products have often been used before there is any general interest in the substances produced. Take, for example, the preliminary treatment of cotton, the purification of boiler water, the early stages of paper making—all these operations use alkali in some form or other in the very early stages of production.

Nearly everything, when you go back to it, comes out of the ground. In the alkali trade we begin with common salt, a material of which this country possesses abundance. The largest deposits are situated in Cheshire, which is the centre of the heavy alkali trade. Salt brine is pumped up from the earth and put through an elaborate and continuous series of processes which are mechanised to a very high degree indeed. There are few more impressive sights than the interior of one of these great factories at night; a steady hum of machinery, an astonishingly small number of men, with an output running into hundreds of tons per day from each unit. The alkali industry is also connected with the production of chlorine, the well-known bleaching agent.

Engineers Earn Credit

The fertiliser industry is, as far as we are concerned, a comparatively new one. We have recently erected at Billingham, in the county of Durham, a factory for the extraction and fixation of the nitrogen of the air. This business, as will be shown later, is intimately linked with the future of agriculture in this country. The initiation of this industry has been a brilliant feat of engineering, and one which maintains the traditional high standard of that science in Great Britain. In the past the chemist has probably claimed and received rather more than his share of credit for the success of our industry, which frequently offers greater difficulties to the engineer who puts it into practice than to the chemist who originally worked it out in the laboratory. Good engineering can often turn an unprofitable chemical process into a profitable one.

Gas Pressure Technique

Our fertiliser process works at extremely high gas pressures, and the technique of handling such pressures not only reflects the greatest credit on those who designed and carried it out, but also affords a means of attacking new problems in similar regions. The artificial production of wood spirit (methanol) is already a fact, and production of oil from coal is another excellent example of the future development of high-pressure technique in this country.

The old reproach that the manufacturers of this country are indifferent to science and research is now a thing of the past. Our organisation is not only keenly alive to its necessity and importance, but is actively prosecuting original investigation in every phase of our activities. In this connection an important point should be emphasised. Research must have an object. There is no such thing as pure research in industry. We have never done any, and will never do so. If you choose to call pure research

the investigations of those branches of science from every point of view which are likely to be of benefit easily the most important and fundamental of all industrial problems. Everyone now recognises the insensate folly of continuous industrial warfare, except those who are avowed subverters of the constitution and of the existing social order. Those, I know, it is your whole purpose to combat and defeat.

The chemical industry has had a most fortunate, happy, and friendly past. Over the long period of fifty-three years there has been no strike, no lock-out, no industrial dispute. The most close and personal contact has happily existed for more than one generation between the captains of the industry and those who work with them. It was stated when the new merger was made that that happy relationship would not be allowed to be altered.

I. C. I. Labor Plans

Recently the first instalment of the Labour Programme of Imperial Chemical Industries, Ltd., was announced to the workers and the world. The programme was, in itself, a proof that the same spirit and the same desire still animated those who were charged with the heavy responsibility of the direction of this huge amalgamation, and it was received and accepted as a fruitful augury for the advance of industrial harmony in the new united industry.

The first instalment dealt with five main points, the keynotes of which were personal contact, improved status and increased security, co-partnership in profits, and co-operation.

So important were all questions of labour considered that it was decided to establish a Central Labour Department, under the personal direction of an executive director of the company, who would be assisted by a Chief Labour Adviser and an Advisory Committee to secure the necessary interchange of views between those who form the policy and those who execute it. By a system of works councils, concentric in character, and ranging from the works council of an individual works, through the general works council of a group of works, to the Central Works Council representing the whole of the 40,000 workers in the combine, it was felt that direct personal contact could be maintained between the Board and the individual worker wherever his place of occupation was. The chairman of the Board himself presides over the Central Works Council.

Insuring Labor Stability

A complaint which has often been raised in industrial relationship concerned the status and security of the worker. By the inauguration of a staff grade of workers, under which all men of five years' service and over would be eligible for promotion to the staff, such men to be paid a weekly wage instead of an hourly rate, and to receive, in addition, a month's notice of termination of employment, payment of wages for holidays, payment of full wages (less National Health Benefit) for all certified sick absence up to six months in any year, it was felt that a concrete instance of increased status and security was being established.

Employee Stock Ownership

By facilitating throughout the whole combine the acquisition of shares by the workers on preferential terms, all ranks of workers are invited and encouraged to obtain a direct financial interest in the company.

To summarise, the machinery for the ventilation of all potential grievances, the machinery for the free and frank discussion of matters of common interest, the machinery for the co-ordination and unification of labour policy for the worker to advance and become a shareholder in the firm, have already been provided in the chemical industry. There is no doubt that by this means the progress and prosperity of all those engaged, and of the industry as a whole, will be increased, and that the cordial relationship which has existed for so many years will be cemented and strengthened.

The achievement of industrial peace cannot be hastened merely by the desires of enthusiastic amateurs or disillusioned politicians. It can be secured only by the competence and good will of those in whose hands are placed the responsibility for industrial organisation, whether on the side of direction or on the side of labour. There is a new spirit and a new science in the management of the chemical industry. That new spirit and new science is the broad avenue to industrial prosperity and to industrial peace.

Silica Gel's master patent, under attack in Germany by the cartel, is to be decided in Silica Gells favor, according to "U. S. Investor." That German patent allowed, then Silica Gel holds an unassailable position from patent standpoint in every desirable market in world. The company's new Curts Bay plant is expected to operate April 1. Davison Chemical Co. owns 184,650 shares of 600,000 outstanding shares Silica Gel stock.

Maurice E. Solvay's election to fill the place of Sir John Brunner on the directorate of Imperial Chemical Industries is regarded as significant in Wall Street as linking international chemical companies closer. Solvay interests are reported to be among the three biggest individual stockholders in the Allied Chemical & Dye, the I. G. and the I. C. I. Ltd.

Synthetic Ammonia & Nitrates, Ltd. have placed an order with International Combustion, Ltd. to install six 800-pound pressure steam generating units of 269,000 pounds capacity each in their plant under construction at Billingham, England.

I. G. has established a position of such leadership on the Berlin exchange that its favorable report inspired a feeling of confidence that did much to offset the effects of Parker Gilbert's adverse report on the general condition of German finances.

Imperial Chemical Industries, Ltd., establishes a Research Council to provide a co-ordinating body for determining lines of general industrial research.

IMPERIAL CHEMICAL INDUSTRIES, LTD.

(The British Member of the Proposed European Chemical Trust)

A Chart showing the products manufactured by its various subsidiary organizations

ALKALI PRODUCTS

Soda Ash, Sodium Bicarbonate, Caustic, Silicate, Sulfide, Soda Crystals, Salt Cake, Calcium Chlorides, Bleaching Powder, Liquid Chloride etc.

BRUNNER, MOND & CO. LTD.
- CASTNER-KELLNER ALKALI CO. LTD.
  - assoc. WESTON POINT LIGHT RWY.
- SYNTHETIC AMMONIA & NITRATES LTD.
- BUXTON LIME FIRMS CO.
- CWMBRAN CHEMICAL CO., LTD.
- ELECTRO BLEACH & BY-PRODUCTS, LTD.
- CHANCE & HUNT, LTD.
- CLEGHORN & BATES, LTD.
- UNION ACID CO., LTD.
- MADELEY COLLIERIES
  - (control shared by MONTAGUE HIGGINSON COLLIERIES
- AMMONIA SODA CO.
- MAGADI SODA CO.

UNITED ALKALI CO. LTD.
- NORTH AMERICAN CHEMICAL CO.
- RAYNES & CO.
- UNITED ALKALI ESTATES
- LANCASHIRE PUBLIC HOUSE TRUST CO.

DYESTUFFS AND INTERMEDIATES

BRITISH DYESTUFFS CORP, LTD.
- LEVINSTEIN,
  - (owner of CLAUS & REE)
- SCOTTISH DYES, LTD.
- BRITISH DYES
  - (owner of READ & HALLIDAY
- BLACKELEY & CLAYTON

EXPLOSIVES

Blasting ~ Explosives ~ Detonators ~ Nitrites ~ Nitric Acids Etc.

NOBEL INDUSTRIES, LTD.

- AMAC, LTD.
- BICKFORD, SMITH & CO., LTD.
- BRITISH LEATHER CLOTH CO.
- BRITISH PLUVIUSIN CO., LTD.
- BRITISH SO. AFRICAN EXPLOSIVES CO., LTD.
- BRITISH WESTFALITE, LTD.
- WM. BRUNTON & CO.
- CONTINUOUS REACTION CO.
- ELEY BROTHERS, LTD.
- ELITERWATER GUNPOWDER CO., LTD.
- EXCELSIOR MOTOR RADIATOR CO., LTD.
- KING'S NORTON METAL CO.
- KYNOCH, LTD.
- JOHN MARSTERS, LTD.
- LIGHTNING FASTENERS, LTD.
- NEW PEGANOID
- NOBEL EXPLOSIVES CO.-
  - OWNERS OF
  - ALLIANCE EXPLOSIVES
- R. & T. JACK & CO., LTD.
- ALEX. WALKER & CO., LTD.
- LANCASHIRE EXPLOSIVES CO., LTD.
- BRITISH ELECTRIC DETONATOR CO., LTD.
- THERMIT, LTD.
- LIVERPOOL MAGAZINES CO., LTD.
- PATENT ELECTRIC SHOT FIRING CO., LTD.
- ROBURITE & AMMONAL LTD.
- SEDGWICK GUNPOWDER CO., LTD.
- W. H. WAKEFIELD & CO., LTD.
- AFRICAN EXPLOSIVES LTD.
- NOBEL CHEMICALS FINISHED
  - Allied with E. I. DuPont de Nemours & Co., U.S.A.
  - ALSO INTERESTED IN
- PREMIER ELECTRIC WELDING CO., LTD.
- WM. BENNETT, SONS & CO., LTD.
- ELEY BROTHERS OF CANADA
- NOBEL, AUSTRALIA
- PAPER GOODS MANUFACTURING CO., LTD.

CHEMICAL MARKETS

INTERESSEN GEMEINSCHAFT

(The German Member of the

A Chart Showing the Products

Various Subsidiary

METALLIC MINES	NITROGEN COMPOUNDS	LIGNITE	PETROLEUM	INORGANICS
MAJOR ASSOCIATIONS				
	BAD. ANILINE U. SODA FABRIK.			FARBW. v. MEISTER, LUCIUS & BRÜNING. FARB. v F. BAYER. CHEM FABR. GRIESHEIM ELECTRON.
PROPERTY OR SOME				
GEW. MARIENHÜTTE.	WERK PIESTERITZ DER MITTELDEUTSCHEN STICKSTOFFWERKE (Assoc. BAYER STICKSTOFFWERKE).		DEUTSCHE GASOLIN A.G. ASSOC. STANDARD OIL & KONINKL SHELL. ERDÖL-U KOHLE VERWERTUNGS A.G.	
DIRECT BUSINESS				
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ETABLISSEMENTS KUHLMANN

(The French Member of the Proposed European Chemical Trust)

A Chart showing the products manufactured at its various plants and the manner in which these plants were acquired

ACIDS	INORGANICS	FERTILIZERS	ORGANICS	DYES
BUILT BY KUHLMANN OR SUCCESSORS				
LOOS Sulfuric Acid Nitric Acid RIEME ERTVELDE Sulfuric Acid PORT-DE BOUC Sulfuric Acid	LOOS Sulfates Soda Manganese Dioxide LEVALLOIS Bichromates	LOOS RIEME ERTVELDE PORT-DE BOUC CASABLANCA (FORMATION OF CIE DE SUPERPHOS ET PRODUITS CHIMIQUES DE MAROC)	LOOS Animal Black	
PURCHASED BY KUHLMANN OR SUCCESSORS				
AMIENS Sulfuric Acid Nitric Acid MADELEINE ROUBAIX-WATTRELOS ESTAQUE Sulfuric Acid BORDEAUX DIEUZE PETIT QUEVILLY Sulfuric Acid Nitric Acid PAIMBOEUF HENNEBONT	AMIENS MADELEINE ROUBAIX-WATTRELOS VILLEFRANQUE DIEUZE GOUHENANS Sulfuric Acid SAINT ANDRÉ Soda Sulfates Silicates	PETIT-SYNTHE MADELEINE Synthetic Nitric Acid USINES DE CARBURE de Calcium et de Cyanamide BORDEAUX PETIT QUEVILLY SAINT ANDRÉ	CORBEHEM (Sugar)	
HELD IN COLLABORATION WITH ANOTHER COMPANY				
VIELLE-MONTAGNE [Soc des Mines et Fonderies de Zinc] TONNAY CHAREUTE (Cie Royal Asturienne de Mines)	VILVORDE (Societé Coignet)	VUREZ (Vieille Montagne) IVRY (ACQUIRED THRU SHARES IN ETAB. JOURDRAIN) WOLHUSEN SCHLIEREN (BOTH ACQUIRED THRU SHARES IN LES FILS DE EDUARD GEISTICH) USINE (D'AMMONIAQUE SYNTHÉTIQUE) (In collaboration with la Cie des Mines d'Anzin		ALL DYE PLANTS ACQUIRED THRU FUSION OF ETAB. KUHLMANN WITH CIE. NATIONALE DE MATIÈRES COLORANTES ET DE PRODUITS CHIMIQUES AND SOCIETÉ POUR INDUSTRIE CHIMIQUE.
ACQUIRED IN THE MANNER INDICATED				
NANTES (Absorption of Etab. Pilan, Durand, Casselint Cie BERGERAC NARAMAS (Both acquired from the Government		AUBERVILLIERS NEVERS (Acquired thru absorption of shares of Societé des Cottes et Gélatines Tancrède		VILLERS-ST.PAUL Indigo & other Dyes TEMBLAY VILLENEUVE-ST-GEORGES OISSEL Coal Tar Dyes

Sulfur Statistics

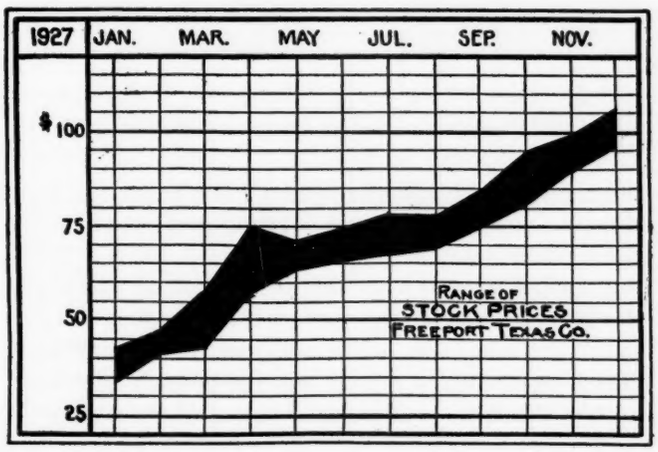
FOR the fourth year in succession our domestic consumption and export shipments of sulfur have exceed American production.

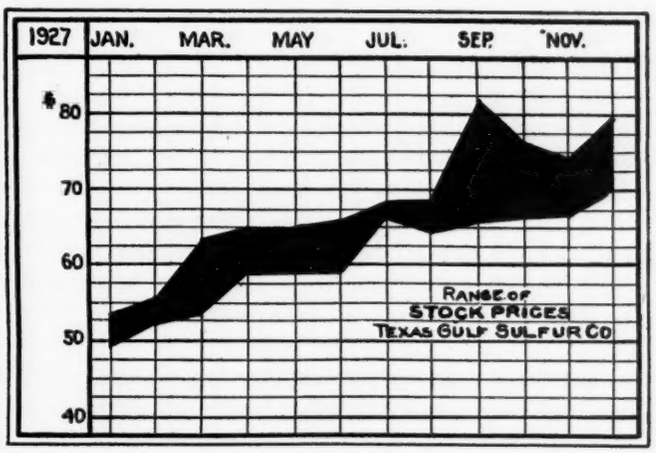
Official 1927 figures are yet unavailable; nevertheless it is plain that with increased production we have increased domestic consumption. The fertilizer industry's demands were obviously below normal; but rubber, paper, and petroleum consumption was surely above 1926. Moreover, exports for the ten months ending October, 1927 were 676,439 tons against 457,695 for the same period of 1926. The balance of stock on hand reported by American producers on December 31, 1926 of 2,060,000 tons is estimated to have fallen to somewhere in the neighborhood of 1,800,000. This represents a reduction in stock on hand of over a million tons since 1923.

The market-wise significance of such figures is obvious. Their chemical and financial meanings are pertinent and far reaching.

There is certainly no reasonable ground for expecting any immediate great curtailment in the steadily increasing consumption of sulfur. With the development of the gypsum process for making sulfuric acid, which is being energetically pushed in Germany as another means of making the I. G. chemical enterprises quite independent of all foreign raw materials, there is at least the technical possibility that in time a goodly part of the sulfur consumption of the present may be lost. In several different directions our output, or possible output, of cheap hydrochloric acid is looming up, and while Dr. Teeple's prophetic speculations that this may someday largely replace sulfuric acid as the common acidulating tool of industry may be still far in the future, they are assuredly beginning to assume the form of distinct probabilities. With perfect logic we may expect that the sulfur consumption of the next decade will hardly equal the rate of growth shown in the past ten years.

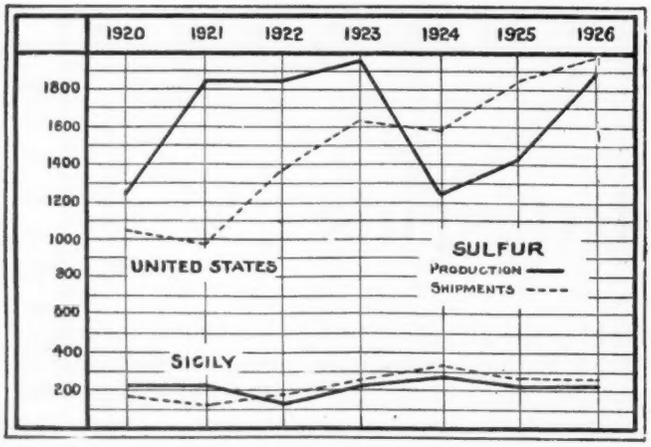
Not only will future increases in consumption probably show up; but production promises to be increased markedly by the output of the new dome now being developed by the Texas Gulf Sulphur Co. Estimates of sulfur in this new deposit run as high as 80,000,000 tons; but these are all more or less guess work. The





older dome of this company has been in operation since 1919, and should be able to maintain present production for another ten years. The Freeport Sulphur Co. is working two domes, the Bryan, which was reopened in earnest three years ago after being worked intermittently since 1914, and the Hoskins, which they have mined since 1924. These two domes are calculated to be good for some fifteen years of operations on present scale.

But all these reckonings are chancy. The Union Sulphur Co.'s Louisiana dome, the daddy of them



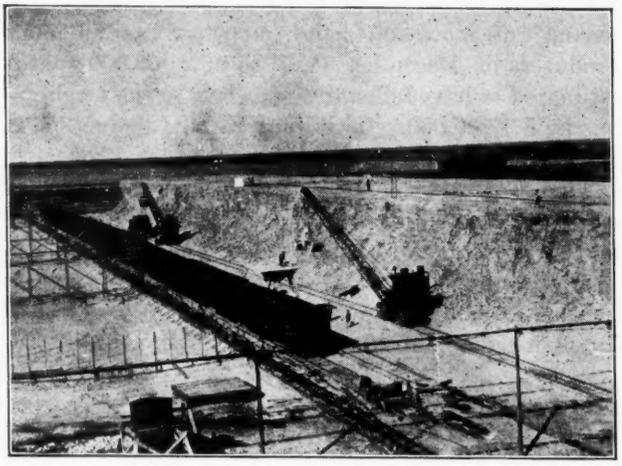
all, failed in 1924 after having been worked since 1903. It failed—be it noted—not from exhaustion, but because cave-ins made it too costly to work by the ingenious Frash hot water syphon method of mining. Of its twenty years productive life the operations, during the first half of the time, were on a modest scale in comparison with the present rate of pumping.

Accordingly, the management of the two American producing companies adopt the policy of taking every possible advantage of their natural resource as long as it lasts. With both production and consumption in the future distinctly uncertain, their program must be nicely fitted to the present situation. Their production schedules, as evidenced by reports from the Texas fields, are based upon bringing current output into balance with present consumption as quickly as possible. Their marketing methods and price policies are designed to move a maximum quantity of sulfur into as many different consuming fields as possible. We may therefore accept at face value the unofficial statements that "the present sulfur price will remain unchanged just as long as possible."

Ever since the War placed our American producers in control of the world's sulfur situation, they have wisely supported their contract customers in the chemical and fertilizer fields. Pre-war half our sulfuric acid was produced from pyrites and for 30-40% as a by-product from smelting operations. To-day three-quarters of our acid is made from sulfur because the sulfur producers have seen to it that there is no temptation to return to the pyrites raw material and have helped the acid makers, so far as they could, to meet the by-product competitio 1. All during the war period, the acid makers with contracts had prompt and full deliveries, often when the outside spot market was keenly anxious to pay a premium price, nor was this due solely to the efforts of the Government to assure adequate supplies of this essential war material. Prior to 1914 we imported over a million tons of pyrites annually and had a third of a million more from domestic mines. Both imports and domestic production have shrunk to a third—in 1926, 366,151 tons imported and 166,599 tons produced. Remembering that during this time our output of acid has doubled, and that the switch in raw material meant a complete change in plant and process, we have here as radical a chemical revolution—though much less widely heralded—as the development of synthetic nitrates, or methanol, or lacquers.

When the Union Sulphur Co. deposit spluttered out in 1923, the sulfur market was being held in line with some difficulty through the post-war readjustment; but the removal of this producer opened wide the door of opportunity for the two remaining companies. Both had entered the field since 1914, when the expiration of the Frasch patents broke the virtual monopoly of the Union people. Both the younger rivals laid down their foundations during the boom demand of the war. During the past year they have both been attracting the attention of Wall Street.

The Freeport Company which was organized originally by the Swensons—the founder was a Scandinavian cattle king of the old Texas range days—and was run as so strictly a family affair that



Loading sulfur onto railway cars for shipment. This is typical of a Texas operation, with a large storage pile forming the base of operations.

the outside stockholders revolted a few years ago, has this year gone on a $4 dividend basis and but recently declared an extra of 75 cents a share. During 1927 the stock has passed though the gamut of selling in the 30's at with plenty of short interests to a strong close at 103. When the stock passed 50 there was heavy profit taking which but temporarily checked its upwards rise. To the wonderment of the chemical

(*Continued on page 116*)

GERMAN CARTELS

Their Legal and Economic Limits

By Leslie T. Fournier

Department of Economics, Princeton University

Just to what extent may a combination of chemical manufacturers control prices? production? markets?—before the economic factors always working against monopoly come in play? Why is the German law favorable to Cartels? What restraints does it use against abuse? Shall we change our trust laws to meet Cartel competition?

IN no country has industrial combination developed more extensively than in Germany. The distinctive form of combination, there, is the cartel. Broadly speaking, cartels are associations of independent business enterprises engaged in the same line of business, the individual members of each association retaining their independence but joining for the purpose of regulating production and sales. The vast majority of cartels in Germany as in other continental countries, are quite loose associations in which the contracting parties undertake mutually to observe certain limitations with respect to terms of sale, discounts, grades and qualities, methods of packing, etc. They are the lowest form of cartel and are very similar to trade associations in the United States. They set standard rules for the industry but do not attempt to regulate the market.

More significant are the cartels which exercise either direct or indirect control over the price of the product. These are divisible into several subclasses according to their methods of controlling the market and the closeness of their organization. Some fix prices directly and members of the cartel agree to sell their product only at that price. Some seek to regulate competition by controlling the supply of the product. They aim to prevent overproduction and the falling prices that result thereform. This is accomplished by distributing the estimated demand among the producing members according to some acceptable plan. Great care is taken to provide administrative machinery to revise quotas periodically, to make adjustments for plant extensions, and for the admittance of new members. This system which threatens to throw plants and machinery idle whenever restrictions are put on production cannot be effective without close control of the individual members, hence the establishment of a special cartel organization is a necessity.

There are also associations which divide the market area into districts and allot to the individual member or groups of members a specific area for its operations, leaving it a free hand within this area. This may be supplemented by special agreements between the members in each district as to their policy there. Very often there is a combination of types in which members are required to report all sales to a common central office, which will not only control the observance of cartel regulations regarding the extent, price and area of sales, but will further secure a fair distribution of the work or a certain balance of receipts between the members of the cartels. These types go far to dull the sharp edge of competition.

The cartel reaches its highest expression in the so-called syndicates or selling cartels—that is in those cartels that have a definite legal personality in addition to that of the contracting parties in the form of a legally competent association, a limited liability company (Gesellschaft mit beschrankten Haftung, abbreviated G. m. b. H.) or a joint stock company, (Aktien gesellschaft, A. G.) whose duty it is to take over from their members (in law this operation takes the form of purchase) the whole of their production intended for sale and to place the whole of it on the market, and in fact, to undertake the sale.

The management of the syndicate, from its knowledge of the market, can determine the total quantity of goods to be offered for sale, and this amount is distributed between the individual members in proportion to their "quotas." The difference between the G. m. b. H. and the A. G. forms of organization is that the former has the peculiarity that its stock cannot be sold or transferred to anyone who is not a shareholder without the consent of other shareholders, and the latter does not possess limited liability.

Cartel development in Germany has closely paralleled the combination movement in the United States. Cartels, however, are fundamentally different from American combinations. The typical American

trust is a single corporation. Its permanency is assured provided it does not run counter to the anti-trust laws. It is on dangerous ground as soon as it begins to exercise control of the market. Cartels, on the other hand, are always limited in duration; the members can at some future date recover their complete independence. Furthermore, as will be seen shortly they have a more enviable position before the law than the American trust, in their pursuit of market control.

In 1879 there were 14 cartels; 1885, 85; 1890, 210; 1903, 385; 1911, 550; and in 1924 no less than 3100. This latter figure refers only to the number of cartels in large scale business and excludes the numerous local associations in small business and trade. To-day there is hardly a basic industry in Germany the production, sale or distribution of whose products is not in some measure controlled by cartels. Nor are they confined to basic industries, but have spread rapidly from one industry to another so that they now permeate the entire industrial life of the country. "The importance ascribed to cartels and their bearing on German economic problems, in a general way may be gauged by the wide and growing attention given them in trade and commercial journals, and by the daily press; also by the scientific study of the economic, legal, and historic phases of the cartel question in the ever-growing cartel literature."

The Economic Forces Involved

The characteristic feature of modern undertakings is, generally speaking, their size. But the larger the unit of business which is necessary to the most efficient production, the greater are the capital losses through a competitive price war, if a maladjustment of demand and supply occurs. Without combination, large firms cannot ensure normal conditions of equilibrium in the markets they supply. "They overcome all technical difficulties, but are helpless in the face of the commercial problem of market congestion." Through the greatly extended facilities for the distribution of goods to-day and the ramifications of trade, the problem of over-production is no longer local but is national and even international. Hence the development of national cartels and international ententes. The difficulties which they are designed to combat arise out of the discrepancy between the continued fluctuations of market demand and prices on the one hand, and, on the other, the necessity of the regular employment of fixed plant. Modern technical science both in large scale industry, most notably in chemical industries, and in transportation accentuate more and more the importance of the factor of continuous plant operation and makes these undertakings particularly susceptible to market fluctuations. The keynote of modern industry becomes, therefore, combination and "rationalization."

In the period immediately following the war, it is important to note everything seemed against the development of cartels. Rising prices and a demand which seemed almost impossible to supply militated against voluntary combinations and cartels. To such an extent was this true that Von Beckerath, the economist, wrote in 1921 that "cartels were once preferred as a means of adapting output to sales. At the present time, this form of organization is declining, it is giving way to re-organization in the shape of great integrated combinations and "Konzerne."

With the deflation period a distinct movement developed for a return to forms of horizontal concentration. Liefmann has expressed the view "that the flowering period of the "Konzerne" was only temporary and related to inflation and the consequent extremely speculative character of industry" and that "the cartel movement, on the contrary, has taken an extraordinary upswing."

Cartels in Particular Industries

Cartels are not equally feasible in all kinds of industry. Their adaptability is greatest in the field of raw materials and semi-finished products. In general, staples and bulk articles or goods manufactured in large quantities and not subject to frequent and wide variations in quality are readily covered by cartel agreements. Products of art, and articles of style showing individual skill, technique and taste are but infrequently syndicated. On the other hand in the manufacture of chemicals, fertilizers, dyes, glass, cellulose, paper, leather, skins and furs, food products, thread, yarn, etc., flourishing cartels exist. The mining industries, potash, coal, phosphates, metals, etc. lend themselves readily to cartel organization and in such industries cartels have been highly developed.

Cartels and Prices

"In the strongest cartels prices are not left to the determining forces of the market; they are managed: they are kept on the safe side of a theoretical competitive price." The charge invariably made against combinations is that they place the consumer at a disadvantage by tending to advance selling prices. This charge has particular application at times of crisis for when prices are falling, cartels are instrumental in keeping them above the level to which they would otherwise drop. On the other hand, the contention is made that when there is an upward tendency, the cartels exercise a contrary influence and keep prices below the level they would otherwise attain. In contradiction to the argument of consumer's disadvantage, therefore, it is claimed that cartels have a stabilizing and regularizing effect on prices. Another advantage claimed for the cartel is that it not only offers consumers the advantage of paying prices which are less variable than they otherwise would be, but also of paying prices which are uniform for everyone. This benefit is of particular value to small purchasers of raw materials, it ensures them real protection.

There are still those who believe, however, that the only assurance of reasonable prices is the truly competitive market. They point out that the whole drift and meaning of the cartel movement is the establishment of a fairly effective monopoly in the different countries; furthermore that, except in outstanding instances of extortionate prices, no adequate public control exists. They insist that the object of monopoly is to fix prices at a point that will yield a maximum net profit and that there is nothing in the nature of things, except the benevolence and altruism of industrial leaders, to secure the consumer against abuse. The extent of monopoly power, they say, is largely a question of the elasticity of demand for the product in question. If the quantity of product demanded diminishes readily with a rise in price, there is some natural security against the abuse of power by a monopolist. But otherwise the power of the monopolist to raise prices to his greatest advantage is large.

Limits of Control

A more conservative view is that in the majority of cases there are limiting factors which come into play before a theoretical monopoly price can be considered by the monopolist. These limitations on cartel price fixing are (a) the bargaining power of other cartels or combinations, (b) the power or threat of "own" production by large buyers, (c) foreign competition. The emergence of international ententes may go far to remove this last limitation and thus make for the greater security and power of national cartels.

Professor Wiedenfeld, in a recent League of Nation's publication, portrays the possibility of maintaining uniform prices in the face of market fluctuations as the deciding factor in estimating the economic merits of the prices fixed by the syndicates or cartels. He points out that the characteristic rhythm of an industry producing for a market—a period of expansion regularly followed by a period of contraction—is due in no small degree to the fact that where there are no restrictions on competition and production, then prices, particularly of materials produced in large quantities, constantly fluctuate. No one can provide against this. Both the industries engaged in working up these materials and the market for them are thus liable to continual disturbance. At one moment producers are reaping especially large profits, the next they are working at a loss. In the former case the consumer finds it hard to satisfy his requirements, the latter means excessive supplies. "Close price cartels and syndicates can bring a certain amount of order into this chaos. They are most readily established in industried concerned in the production of raw materials or in mass production. They lie, therefore, at the very basis of the whole economic structures." He concludes therefore that their stabilizing influence is in the general economic interest. A very similar view is expressed by Professor McGregor of Oxford University, who says that "the idea of regulating output by concerted arrangements between producers is no longer seriously opposed by economic theory or public policy. The larger the unit of business which is necessary to the most efficient production, the greater the capital losses which result if this adjustment is made by the failure of certain firms, and the more severe the price wars entered on to decide which firms are to fail. The fact of combination is generally accepted. There is a general desire to make use of combined action in the interests of regularity and stability."

Cartels and the Law

Some have characterized the attitude of the German Government toward cartels as one of benevolent watchfulness. From 1903-1906 a comprehensive official investigation of cartels was made. These hearings were published in about a dozen volumes dealing with cartels in coal, steel, alcohol, news print and a number of other industries. However, the Government seems to have been convinced of the economic value of these organizations. They were permitted to continue their functions, but were cautioned that their price policy must not become extortionate or oppressive.

The general European tendency has been to consider the cartels a useful economic tool, particularly serviceable in periods of depression when some systematic adaptation of output to consumption rate can distribute business without overproduction or price competition. During the war cartels played an important part in handling the huge war orders and in the effective allocation of raw materials. In some cases, cartels were imposed by the Government over the protest of participating plants. The German government created compulsory syndicates, especially in the mining industries, on the model of the potash syndicate which had been organized under Government pressure in 1910 to prevent dissolution. By a law of April 24, 1919, the compulsory sales cartel of the potash industry was re-organized. The Rhenish-Westphalian Coal Syndicate was similarly re-organized by compulsion in March, 1919.

After the war, demand for legislative regulation of cartels in Germany culminated in the passing of an act in November, 1923. This legislation created a special cartel court to hear cases brought against cartels either by members of the cartels or the Government. The act provides remedies (e. g., by prohibiting or nullifying agreements) whenever a cartel agreement or policy endangers the common welfare of the people. In the more outstanding cases, where public interest is involved, recommendations for remedies are made before the court by the Imperial Economic Minister. The legislation provides for protection of members to cartel agreements so as to

(*Continued on page 102*)

THE 3rd FACTOR IN CHEM

An Analysis of Some Modern

To a man on Mars the composite picture of the American chemical industry must appear as a paradox. He sees plants equipped with the most modern machinery, housed in buildings which contribute to an economical production and to the morale of employes. Every idea which promises to facilitate chemical production is enthusiastically tested. If practical it is adopted forthwith. Not content with holding present gains the chemical industry is constantly invading virgin fields, and proving a benevolent conqueror. Fundamental advances in the industrial application of chemicals and chemical processes are being anticipated by many firms. Truly, this industry—in its production phase—well merits the description, "on its toes."

But when our mythical observer turns to the sales side of the picture, does he find a similar alertness to seize upon every factor making for greater prestige and profit? Let us see.

For sales only two contacts with customers and prospects are universally employed—salesmen and correspondence. No one questions the ability and effectiveness of chemical salesmen: nor doubts that personal contact probably always will be the mainstay of chemical distribution. Correspondence constitutes a secondary contact. Its value is largely contingent upon the intelligence and methods displayed in its treatment.

These are the "old line" selling contacts, in use ever since there was a chemical industry. Then, a comparatively few years ago, some chemical executive took thought with himself. Competition was stronger: sales harder to make. So the facts were weighed out and appraised squarely in this wise:

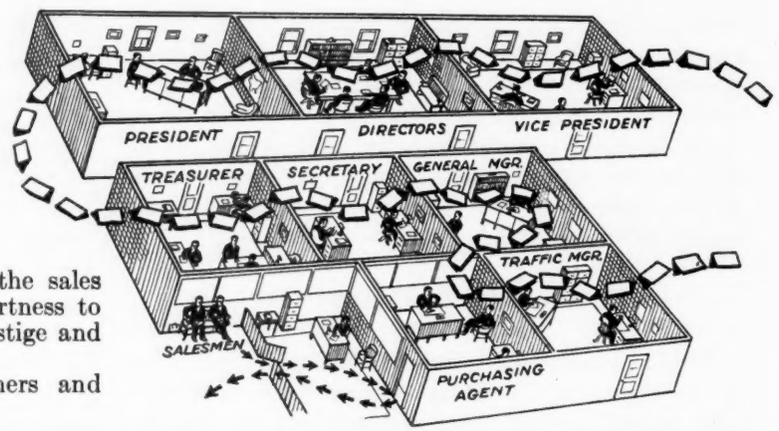
"On the face of things I seem to have not a single advantage over my competitors. Quality?—between my product and other brands there isn't the difference of tweedledum and tweedledee. Prompt deliveries?—I've good order fillers. So have the other fellows. Prices?—if they're shaded below the market there go needed profits. It would start a price war, too. No, that's out."

"What have I got to offer customers? What influences the buyer to buy my product? And what brings customers back time after time?"

And then this manufacturer thought that from the very first he had made as fine a product as his skill and knowledge and resources permitted, good product too, of which he was proud. Moreover, this quality had been at times maintained. His name stood for dependability.

In many ways he was helpful to the users of his product. He extended technical assistance in solving problems involving the use of his material; his field men worked in improving processes, without direct recompense. He and the executives of his company took genuine interest in the business welfare of customers, evidenced in a practical way by giving them an advantage wherever and whenever possible.

This manufacturer had real service to offer. More than he realized perhaps he had the further advantage of being known for the practice of the old yet prized virtues of strict honesty and fair dealing, even when it operated at the time to his own disadvantage. His fundamental policy was not to consider a transaction closed until the customer was satisfied. Business was conducted on a friendly basis, a fact which his customers, being human, appreciated.



Advertising penetrates regions unexplored by salesmen. Here its thoroughness is shown graphically: advertising reaches all those who directly or indirectly influence purchases; men with whom salesmen never come in contact.

But, pondered this wise manufacturer, weren't these features and business methods important to buyers? Intangibles, they might be classed, yet they exert a powerful influence if buyers. But also wasn't it hard for his salesmen to get these 'intangibles' over into the consciousness of buyers? Practically impossible.

If he, the manufacturer, could only talk to each buyer. And he would like to talk to the other executives of these firms, men his salesmen never saw, yet who were in the background of every sale.

Right here another factor in chemical selling made its initial bow. It was, and is, a force effectively employed by makers of products ranging from soda straws to complete buildings—advertising.

Now advertising, for chemical industries, is no magic lamp which, with a little gentle massaging, promptly responds with mail bags full of orders. Its results are much more spectacular and easily traceable when it is employed to stimulate sales of toothbrushes, breakfast foods or automobiles. This very contrast makes many chemical manufacturers look askance upon advertising, insofar as their own business is concerned.

The success of advertising to the consumer led some of these manufacturers to put forth tentative efforts along the same lines. Without fully understanding the forces within advertising and the laws by which it operates, they embarked upon advertising. Or thought they were embarking. Space was

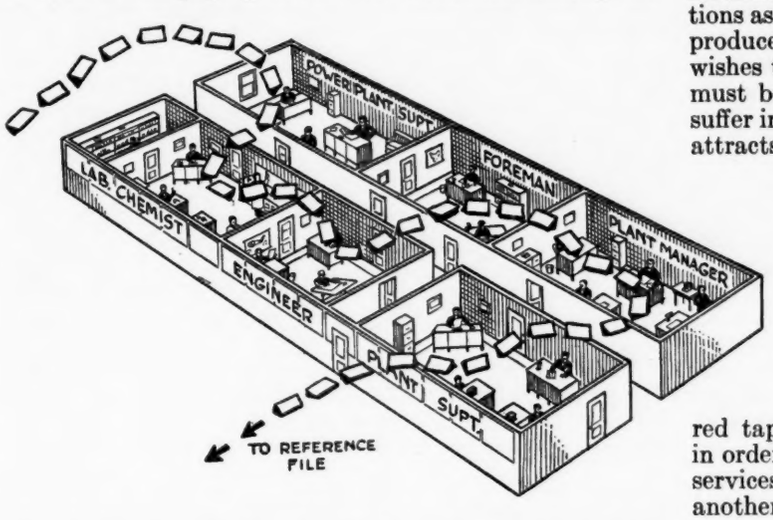
*Vice-President, Hazard Advertising Corporation.

ICAL SALES EQUATIONS

*Selling Helps by C. B. Howry, Jr.**

taken in the trade publications—an inch card, a quarter page, with even a half page now and then. These advertisements consisted of the name of the manufacturer, his product, and the address. They ran thus for month after month.

Did buyers telephone that they had read the advertisements and wanted quotations? Was the appearance of even a half page greeted with excitement among the chemical process industries? Was the office boy kept busy opening letters containing orders? You know the sad answer. Apparently, not a ripple disturbed the buyer's calm. Too much chemical advertising is still of this nature. It speaks more for the optimism of the advertiser than for his good judgment.



A look at what makes the advertising wheels go round should supply the answers to a good many questions which puzzle the chemical industries.

Must I dodge a few well aimed rocks if I say that advertising will sell chemicals? Remember, chemicals are not "sold", they are "bought." The need is there waiting to be supplied. The problem involves placing before the buyer a combination of facts which will turn the order to a specific source of supply. Further on in this article I will give quotations from chemical authorities which go far to prove this contention. But let us first see what advertising is, and how it can exert pressure on buyers of chemicals. When I speak of advertising I am referring to all media.

Calco

Divested of its mystery and sometimes confusing phraseology, advertising is simply a means of favorably influencing the minds of others. It operates by taking fair advantage of known human impulses, emotions and reactions. It is a voice multiplied two, three, five thousand times, or the number of times the advertisements are circulated. It uses some of the artifices of the human salesman, plus some exclusively its own.

The buyer of chemicals is looking for an advantage for his firm. Not of price or quality perhaps, because he knows that chemical prices and quality are pretty much the same. But if he feels that a certain acetic acid, or liquid chlorine or formaldehyde is all it should be in grade and price he is not going to stop at that dead wall. Not if he is a good buyer. He senses other factors which are in his favor, or which should be. And the house which throws something else into the bargain is going to receive his very close attention.

Dependability, for instance, has real value. Manufacturing formulas are predicated upon certain specifications as to materials. Variations in materials produce variations in results. No buyer wishes to be placed in the position where he must be alert to see that his firm does not suffer in any phase of a transaction. Security attracts him. He gives the order, other things being equal, to the firm known for its reliable treatment of customers. For its willingness and *ability* to conduct transactions on a pleasant and efficient basis. Perhaps the technical staff of the X Company is particularly expert in problems which interest the buyer. Their services are freely available to users of the product. In an emergency, is there a company which will cut factory red tape and fracture transportation rules if necessary in order to deliver a rush order? Such major and minor services, which distinguish one chemical company from another, might be continued almost indefinitely.

Reviewing these features, so desirable from the buyer's standpoint, how is advertising to be of help?

The advertising message is authoritative. It is the voice of the company itself. The printed page is a record in its statement of company policy, of advantages and factors of service. It is a broadcast medium reaching the whole trade simultaneously. Through advertising greater control can be exercised over the conditions surrounding sales.

DOW

The main function of chemical advertising is that of a missionary. It can be used to overcome the lethargy and inertia which salesmen encounter. It is not stopped by office doors or 'busy' signs. It reaches the actual buyer. It constitutes a different approach, at a different time, and reaches him in such a mood as no salesman is ever fortunate enough to find him. It also penetrates to executives unseen and otherwise unreachable factors in the purchase of chemicals or equipment. Good sales-managership is convinced that it is expensive to use salesmen as missionaries. Salesmen are specialists. A thrifty use of their time is to use them as closers, and not openers, of negotiations.

COOPER'S CERTIFIED CHEMICALS

The advertising can, point by point, explain the details of service. It can effectively bring out the fact that dependability of quality, or uniformity of quality, is a cardinal principle. Perhaps it can tell how this dependability is secured. It can inform of new developments, new processes, new uses. It can bring out the

extent and value of technical service in a manner no other medium of communication can approach.

Above all, properly prepared advertising breathes the spirit of the company sponsoring it. The attitude of the company toward its customers, the kind of men who control that company, can be accurately reflected in the character of the advertising. For a firm is judged by its advertising just as people are judged by conduct and appearance.

These messages coming regularly to the trade built confidence in the firm, its salesmen, its products. Good will grows, based on knowledge of the admirable qualities of that firm. For here advertising has an advantage over pure publicity. It is sponsored by the company itself, which goes on record in black and white. It cannot go behind this record; and the responsible company does not want to do so. This feeling of good will toward a firm cannot but help the salesman who calls on a prospect. Though that prospect may never have met any of the firm's representatives or executives, he is nevertheless ready to believe what the salesman tells him, for he feels among friends. This feeling of friendliness and its reaction is well summarized by the director of publicity of a large industrial corporation who has remarked—"It is a well known rule of human conduct—the tendency to stick to the beaten path, and wish to be with friends rather than strangers, the preference for merchandise that is known rather than unknown—that gives advertising its chance. For it is advertising that has made household words of such names as Campbell's, Gold Medal, Ivory, Heinz's. And it is advertising that set the high standard of quality which Mrs. Jones, multiplied millions of times, has come to look for in the goods that bear these names. *The same is true of industrial products"* The italics are mine; for if ever a class of products needed (and deserved) the sales stimulus of good will it is chemicals. This is the more readily apparent when it is realized that purchases of chemicals are circumscribed, both as to specifications and amount. Except for new uses the amount of chemicals consumed in industry is definitely fixed. The volume of demand therefore is automatically determined. The effort to sell this volume is often complicated by a condition of overproduction. This further serves to turn chemical selling into a good will proposition, and that is just where advertising can be most helpful.

Some firms may feel that years of service, an enviable reputation for reliability, and size which they consider too large to be ignored by buyers, makes advertising non-essential for them. They feel that these factors have secured the lasting good will of buyers. Yet no truer words were written than that fame is fleeting. It is particularly so in the chemical field. Since the armistice for instance there are new elements in the situation. New executives are constantly coming to the fore. The splendid features of many old firms are little appreciated, if not utterly unknown, by many present day buyers.

Now and then the opinion is voiced that consumer advertising is an influence, but that the industrial buyer is unaffected by this form of salesmanship. The industrial buyer is not a Dr. Jekyll and Mr. Hyde, so to speak. He does not shed his human likes and dislikes, emotions and prejudices when he enters the office. Rather his thinking powers are more largely called into play. And that is the cue for logical and intelligent advertising.

Good will is frequently misunderstood. There is no standard definition. It is thought of as meaning business friends; of a feeling of friendliness which takes practical expression in favoring one firm over another; of an attitude of confidence; of satisfaction engendered by quality products or excellent service. You have your own definition. But there is no question but that good will is a tangible, active force in every human relation, business included. Probably a better understanding of it may be gained when it is considered what happens when *ill will* is incurred. Although disposing of chemical interests may be furthest from the thoughts of any of the reader, it is interesting to consider the financial value set upon good will. As one investment banker states the case, "Good will of a business in the financial sense is its salable value in excess of its tangible assets. It makes little difference whether the item appears in the balance sheet at $1 or $1,000,000. If the business is sold, the purchase price of good will depends upon the agreement of buyer and seller as to the amount of money to be paid in excess of the assets regardless of the figure on the balance sheet." In the famous sale of the Dodge automobile interests, good will was estimated at $11,000,000, and paid for accordingly. At the liquidating sale of the textile mills which made the famous Devonshire Cloth the buyer was indifferent to the buildings, looms and equipment. He passed them by for the trade-marked name, more valuable than all the physical assets by reason of the good will it possessed. Trade-marks do accrue good will, a fact recognized by the courts. And the owners of these trade-marks give full credit to the part advertising played in establishing their value.

There is a significant feature of chemical sales with which few other industries have to contend. Probably 80% of the entire volume of sales are made on contract; and this selling of contracts is concentrated within a short space of time.. Within three months, at the most, are crowded four-fifths of the entire sales reward. Valid reasons support this custom, yet it must be admitted that it entails considerable hardship on the average sales staff. Now a staff must be large adequately to cover the country and transact 80% of its business within twelve weeks. Opposed to this is the simple mathematical fact that this procedure leaves only 20% of the chemical sales volume to be transacted for an entire ten months. Obviously, it is not good business to maintain an over-large sales staff; and unfortunately there are no freelance chemical salesmen whose services can be engaged for a few weeks, after which they go back to golf in Florida or hunting in Maine.

The result is that the most able sales staff in existence finds itself toward the close of each year in what is popularly known as a "jam." Very little time, comparatively speaking, can be allotted to individual prospects or old customers. Only the high spots can be covered. This situation can be materially cleared by the use of consistent advertising. A constant succession of well written, well thought out advertisements appearing throughout the year will thoroughly familiarize

(*Continued on page 114*)

The Inner Workings *of the* International Cartel

By J. George Frederick

WHAT is the nature and working method of the international cartel, which is looming on the European horizon as a competitor worthy of the steel of our large scale American organization?

American business men are giving keen attention to this subject—especially in the chemical industry, which faces the recently formally completed chemical cartels, organized on a most formidable scale; inclusive of France, Germany and England, with Belgium and other countries doubtless to be later included.

The method is not new. An international association of railmakers was formed in 1884 by British, German and Belgian manufacturers at that time engaged in export trade. Its object was to apportion all exports order for steel rails, and each national group undertook not to quote terms on products to be used in the countries of the other groups. It was dissolved, but later a new agreement drawn up in which also French, Italian, Spanish and Russian interests participated. The allotment of rails was on the following basis:

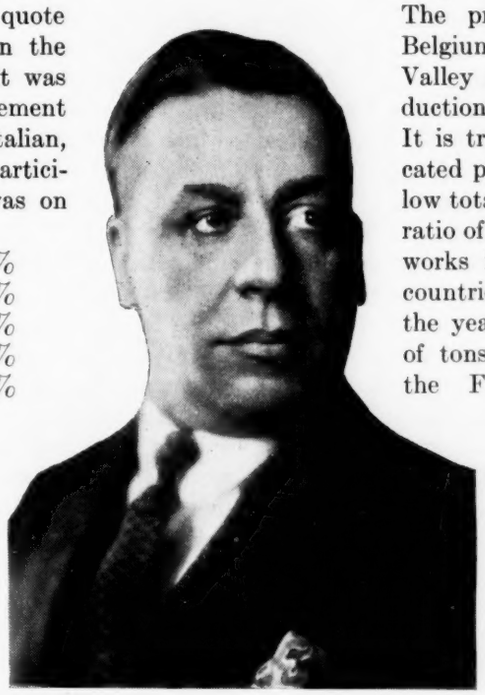
British producers	33.63%
Americans	23.13%
Germans	23.13%
Belgians	11.11%
French	9.00%

This quota system is to-day the foundation of the international cartel plan of operation; the cornerstone on which the structure rests, since the great object is to prevent overproduction, which in turn, brings price disorganization. In the last analysis the price situation is the bedrock basis for an international cartel, and for this reason tariff walls have been the cause of much of the chaos calling for international cartels as remedies. These have to be hurdled first in preliminary understandings between governments, if possible, to make a hopeful basis for getting together; and then a sound policy or principle regarding price found. As Prof. D. H. MacGregor of Oxford has pointed out "the idea of the cartel is that a price is not something determined by a marginal or average cost, but an instrument for the administration of an industry, so as to prevent the fluctuations which take place around the trend of the market . . . Prices are managed; they are kept on the safe side of a theoretical competitive price."

If we add to this the obvious economy of concentrating purchases and sales effort, we have the full scope of the structure of international cartel operation.

Let us now examine some concrete examples. The European crude steel cartel is perhaps the outstanding one; the most advanced and modern. The producers in Germany, France, Belgium, Luxemburg, and the Saar Valley fix and agree on quotas of production, with penalties for deviation. It is true that this is a rather complicated plan, because German quota with low total production is so small, that the ratio of quota to capacity of the German works is less than in plants of other countries enlarged in recent years. Of the yearly production of 29.28 millions of tons, the German share is 43.17%, the French, 31.19%, the Belgian, 11.56%, Luxemburg's is 8.30%, and the Saar Valley is 5.78%. One dollar is paid into the common treasury for each ton of crude steel produced, and for each ton of production in excess of quota, four dollars. This cartel has an accounting quarterly, and when a participating country produces less than its quota, it gets $2 per ton of the treasury until the deficiency reaches 10%; but only for a few months.

This is a method to curtail price cutting on the world market and to prohibit an



Why is a cartel formed? How is it brought together? What sort of organization does it maintain? Who enforces its rules and by what measures?—answered by the author of "Modern Industrial Consolidations" who for a year has studied these questions at first hand in Europe.

extension of production. The steel cartel's penalty feature is the striking new development in cartel operation, and appears to be a bold but efficient method, so far as it is possible to tell from the short time it has been in operation.

Production and accounting are also supervised by a neutral trustee; which again is an interesting and novel feature. A unit world sales organization has been in process of development for some time, but not yet completed.

The entire steel cartel was recently most seriously threatened by the balking of Belgium. Belgium refused to accept the export quota for semi-finished products and steel bars which was determined upon by the cartel. Belgium desired a much larger quota, and some of the other countries represented in the cartel sided with her. Germany, in fact, had offered Belgium a part of her quota, in return for promises to limit Belgian sales in Germany of certain steel products; thus opening up a new phase in international cartel operation; namely, trading between cartel members in different countries of cartel quotas. Belgium hesitated so long that Germany, hit by depression, withdrew her offer. Germany, in fact, having a rather low quota, and home markets dropping, has also come to a critical test of cartel loyalty, and is apparently tentatively planning for independent selling, instead of relying on unit world selling within quota. Belgium, having unusually low production costs, is restive under her quota limitation; and so we see the first crucial test of the quota system in a large cartel.

Competitive Prices

The working out of the price situation by the steel cartel has also been rather disappointing; although the blame is laid on delay in getting the unit world sales organization into functioning order. The cartel has not been able to fix prices low enough to compete with British, American and other steel producers outside the cartel. The cartel, in other words, has not yet been "oiled up" and smoothed into its possible speed so that it can register its effectiveness as against the competitors outside the cartel. Possibly it never will successfully complete with them; but fairness demands that judgment be suspended until it begins to function in full. Our American experience indicates that great vertical organizations take considerable time to integrate themselves, and reach their full effectiveness; as witness the years of development of General Motors before it was able really to compete with Ford.

The clashes which have occurred have thrown light on the fact that a cartel, to have the best chance of successful operation, should have all the main factors in it. As English steel producers are not in the cartel, it has a very hard race to run, to say nothing of the pace set by America.

However, on the constructive side, it has already functioned most satisfactorily in eliminating "dumping"; and in limiting excess production. The total production is not finally fixed, but varies according to the fiat of a Board, a "Committee of Four," which adjusts the total to circumstances. When the unit world sales organization and the price level have been worked out as satisfactorily as have other problems, the steel cartel will have demonstrated its success. At present it is in the throes of organization, and its working methods can be regarded only as in flux. I do not believe that the recent quota disagreements are alarming; they represent merely the friction naturally attendant upon fractional adjustments in any union of independent interests.

Initial Difficulties and Advantages

As a general rule, all international cartel organizations are attempted in such shambles of competitive warfare and mutual wariness that efforts at union meets with perfectly understandable initial difficulties. Cartels that do not consist of associations of different nationalities, but based upon agreements between comparatively few undertakings, in new branches of industry, and upon the utilization of specific patents under license, are more easily formed and apparently last longer. A number of international cartels have been formed on a monopoly right basis in the chemical, electro-technical, metal, petroleum and other industries. But these, too, do not face the larger problem of successful operation which the steel and other cartels face.

What Europe has most sorely needed is a technique for economic union, across political boundaries, in broad industries, and it is obviously that technique which is now being forged out, with much heat and flying sparks. The quota method is most readily agreed upon, for that is after all statistically calculable from the present relative positions of the industries; but agreements upon the more subtle factors involved, unit world sales organization and price levels, come less easily. Both of these factors have to do with the market, which is not technically under absolute control, like production ratios.

It is acknowledged by experts who have studied the subject that the limitation, and if possible *complete removal* of international competition, rather than merely the command of production, is the strategic key to operating success for international cartels. The questions of *supply* and *price* become exceedingly important in an international cartel, while the seriousness of the sales factor is naturally minimized as the command over competition increases. The agreements of the quota-imposing type of international cartels intervene directly in the regulation of supply; establishing the level of output for each member, on a calculated basis of minimum demand, and allotting corresponding supplies, centrally purchased.

The critical point of penalties for exceeding quota is that provision for fluctuation is provided, if the set

(*Continued on page 106*)

Financial BACKGROUNDS *of* EUROPEAN *Industries*

By William Albert Noyes

EVERYONE thinks of the financial cost of the war as tremendous and that it must necessarily take a very long time to restore normal financial conditions. Great confusion appears in the minds of many people as to what constituted the *real* losses and how those actual losses have been or may be restored. There is also a general failure to understand the difference in the incidence of those losses in England and America, where the Governments have maintained their credit and the incidence in France and Germany where the national credit has been largely or wholly destroyed. France and Germany are far more nearly parallel in this regard than France and England.

A life-long interest in social and economic studies, a host of close personal contacts with leaders of European thought preeminently fit this distinguished chemist to discuss the post war background against which the new chemical situation in Europe stands out in bold relief.

The war debts are often thought of as the losses of the war and from the point of view of the various Governments this is true so far as the Government has maintained its credit. But from the point of view of the people, as a whole, the war bonds are simply the documents which show who furnished the capital to run the war. The *actual* losses were quite different and fall into four principal categories:

1. Munitions and other materials used in the conduct of the war.
2. Vessels and cargoes sunk by submarines.
3. Destruction of property in the devasted areas in France and Belgium and through bombardments and air raids in England and in Germany.
4. Loss of manufactured goods and other products which might have been made by soldiers, who were in the army, and losses caused by the disorganization of industry.

When the losses are analysed in this manner it is seen that they are not so large a permanent loss to the various countries as has been generally supposed. Munitions and war materials were made during the war and the stocks on hand were vastly greater at the time of the armistice than in 1914. So far as these had a commercial value the nations at war were richer in 1918 than in 1914.

Ships were also built very rapidly during the war and the experience of the United States seems to indicate that there were too many instead of too few ships after the war.

The destruction of property in France was large, and from the point of view of world economy the restoration was handled very badly. French politicians insisted that Germany pay cash for the losses, without any regard for the economic principle that in order to do so she must manufacture other articles than those required for the restorations and sell them in the markets of the world. If France were willing to allow Germany to furnish the materials and labor necessary for reconstruction the problem of reparations would have been much simpler and the reconstruction could have been carried through very rapidly. It is, doubtless, too much to expect of human nature that Frenchmen should accept such a solution, but the nation is suffering severely because it did not do so.

The world's stocks of manufactured goods were doubtless much depleted at the close of the war, but in America the point of overproduction was reached within two years and the fact that more than a million men have been out of employment in England much of the time since the war indicates that overproduction is chronic there. It may also be connected with the fact that the war bonds have absorbed a large portion of England's available capital and the higher rate of interest paid in comparison with the rates paid on pre-war "consols" contents many holders of the bonds so well that they will not risk them as collateral for uncertain manufacturing ventures.

The low rate of interest on the "consols" has caused a considerable fall in their value. This and the very high taxes have caused much suffering to individuals

in England, but this must be very small in comparison with the suffering in Germany and in France.

The German war debt was 150,000,000,000 marks. Not only the bonds issued but all other paper securities lost their value. I said to some of my German friends in 1924, "England looks forward to 80 years for the payment of her war debt. By repudiation you have paid yours in five years. It was not the right way to pay it but it is *paid*. Any country which can do that must have tremendous resources within itself." Practically, the repudiation has caused a redistribution of wealth in a very unjust way. Nearly all persons of the great middle class have lost their wealth. Those whose money was in land or factories or other *real* property have retained their capital and in some cases have increased it. Some succeeded in sending money out of the country in time to save their property, but during the days of rapid inflation conditions must have been well nigh insupportable for all. The wife of a friend told me that on the days when her husband was paid she was accustomed to go to his laboratory and take the money as soon as it came and go out into the market and spend every cent of it. If she were to wait for him to come home at night the money might have lost half its value! How men and women lived through such times it is hard to imagine.

A friend in France wrote me not long ago that it seemed a little hard to him that Germany should now be on a gold basis while France has to struggle on with a depreciated currency. I said to him that France may go the same road that Germany has, if she wishes. And she has gone much further on that road than most persons realize. Germany destroyed the value of her securities by the inflation of her currency. France has inflated her currency so far that the franc is now worth less than 20 per cent. of its face value. But France has also destroyed the value of her bonds by attempting to meet current obligations by new issues.

THE German indemnity of 1871 was paid by means of a loan, partly subscribed in Germany. To the 5,000,000,000 francs of bonds from this source was added an indebtedness of about 11,000,000,000 francs inherited from the Empire and the expenses of the war, bringing the total indebtedness of France to about 23,000,000,000 francs in 1876. Instead of paying the loan or reducing her indebtedness the loan was refunded and increased, from time to time, until in 1914 the bonded indebtedness of the French Government was 35,000,000,000 francs, seven times the indemnity paid to Germany. The owners of these bonds had paid for them in gold or its equivalent and the credit of France at the beginning of the war was good. During the war France did not lay special, high taxes, as was done in England and the United States—the only sound policy for any government at a time when many are making high profits on war materials. Indeed many claim that during a war capital and labor should be conscripted as well as men who are to be soldiers and such a policy seems entirely reasonable under modern conditions.

France not only failed to lay high taxes during the war but she deceived her people with the cry, "Germany will pay it" and did not increase taxes till 1920, meeting many of her current obligations and all the cost of the restorations by the issue of more bonds and by short time paper. She has also increased her issue of paper money, putting an additional 10,000,000,000 francs in circulation as late as 1925.

TO-DAY the franc is worth a little less than four cents, or less than 20 per cent. of its par value. The bonds for which Frenchmen paid gold in 1914, or before, are now worth less than 50 per cent. of their face value, *in paper francs*. This corresponds to about 10 cents on the dollar in gold. The French representatives in the Chamber of Deputies and Senate object strenuously to a capital levy. The French people do not seem to see that the policy followed has robbed the owners of French bonds of more than 90 per cent. of their original value. I have sometimes said that the German Government by inflation robbed the owners of German bonds of their total value. The French Government has robbed the owners of French bonds of more than 90 per cent. of the value. The principle seems to be the same and in both cases the loss in value of all paper securities has caused untold hardships to millions of people. It is fair to add, however, that a part of the depreciation of the French bonds is due to the low rate of interest. This part of the depreciation corresponds to the loss in value of the English "consols."

IT will be seen that the cost of the war has fallen very differently in different countries. In England it has fallen heavily on all classes of people except those of very modest incomes. Nearly one-fourth of the total production in England is taken in taxes by the Government. In Germany the cost has fallen especially on the middle class having relatively small amounts of savings, invested in paper securities. Whenever possible, this class of people have been compelled to find remunerative employment. The aged and infirm have suffered cruelly and many of them have died in poverty. In France the conditions are similar but not quite so bad. In this connection I recall a statement of a friend in Prague, made in 1922, "The German Government may be bankrupt; the German people surely are not." This statement is almost equally true in France.

As we look to the future, it seems impossible to find any remedy for the mischief done in Germany, France and other countries of inflated or repudiated currencies and securities. The lesson for all nations written indelibly from the history of the last few years is, "Thou shalt not steal," which, being interpreted, is, "You must not attempt to pay your debts by inflation

or by issuing securities without proper arrangements for payment of interest and gradual retirement."

CERTAIN other considerations, however, deserve notice. In connection with their debt to the United States, Frenchmen often say, "We fought your battle for four years before you entered the war effectively, so morally, we owe you nothing." In reply to this I say that we were drawn into an international quarrel for which we were not at all responsible and spent more than twenty billion dollars of our own money in putting an army into the field and maintaining it there. From that point of view I do not recognize the French claim, which, at basis assumes that Germany was *solely* responsible for the conditions which led to the war. Not many Frenchmen will, at present, accept the view that France was, also, partly responsible for the European conditions which resulted in the war.

There is another point of view, seldom, if ever presented, which does not leave the English and French financial responsibility to America so clear, morally. America, alone, came out of the war with an enormous increase in wealth. Thousands of our citizens grew rich on the misery of Europe. There seems to be no legal way in which we can discover how much of an individual's wealth has its origin, directly or indirectly, in money gained from the conditions which caused such a flow of money to America during the war. But it does not seem right that we, as a nation, should profit so enormously from the war as we undoubtedly have done. The only way in which this wealth, all of which, I think, does not *morally* belong to us, can be returned to Europe, which needs it so sadly, would be for us to forgive a part of the English and French debt to us.

THE world has, as yet, adjusted itself but poorly to the tremendous increase in power of production which science, engineering and new methods of distribution have given to our modern world. The only reason why starvation and cannibalism did not come in Germany during the distressing conditions of 1922-24, as Professor Haber prophesied they would, was because our civilization has such a large margin beyond the barest necessities of food and clothing that it was possible for the people to survive. At the time of the Thirty Year's War there was no such margin.

I have pointed out that a very large portion of the materials used in the war were made during the war period—and this in spite of the fact that millions of able bodied men were at the front and not engaged in production. It seems very evident that we have abundant facilities for production to give to every one not only the necessities but also many of the comforts and even luxuries of life. The world has solved the problem of mass production. It has not

(*Continued on page 104*)

Science and Sales

Aluminum salts, for example, the sulfate, have found new use in tanning skins, according to the I. G. British Patent 260, 543. They replace the double salts of chromium.

o-Dichlorbenzene, byproduct in the manufacture of p-dichlorbenzene, finds a new application in metal polishes, which are non-corrosive, and non-inflammable at room temperature. The action on the metal surface is negligible, according to Groggens and Scholl, U. S. Bureau of Chemistry.

Thymol has been synthesized by the reduction of nitro-cymol with sodium amalgam. The resulting amino thymol is diazotized and readily converted to thymol with stannous chloride.—*Bull. Soc. Chim. France (4) 1927, 454.*

Sulfo-cyanide added in small quantities to the dye bath gives acetate silk an affinity for basic colors so that the latter are taken up evenly and are fast to rubbing.—*German Patent No. 444,961.*

The use of sulfur dioxide as an antichlor and sour is becoming more usual now that it is readily obtainable in liquified form.—*Dyer & Cal. Printer, Nov. 15, 1927.*

The turpentine and rosin market may be affected by the ingenious method of extraction, devised by a Russian engineer, Filippovich, who utilizes the fact that in the winter the unfrozen resinous matter accumulates in the core of the tree and can be easily separated from the frozen layers which do not contain resins. The latter are suitable for the paper, cardboard, and cellulose industries.—*Naval Stores Review, Nov. 26, 1927.*

Propane and butane, by-products obtained in large quantities for the production of natural-gas gasoline and heretofore a drug on the market may find a new use in the carburetion of water gas.—*U. S. Bureau of Mines, Serial 2840.*

The crude wax extracted from the peat at Chatham Islands is a possible substitute for black montan wax and the residue after extraction a useful fuel.—*J. Soc. Chem. Ind., Nov. 11, 1927.*

Cellulose may be readily esterfied by treating it first with the vapors of the lower fatty acids such as acetic for formic in the presence of air or other inert gas.—*Les Revue de Prod. Chem., Nov. 15, 1927.*

Roentgen rays will revitalize poisoned platinum catalysts.—*Chem. Zeit, Nov. 19, 1927.*

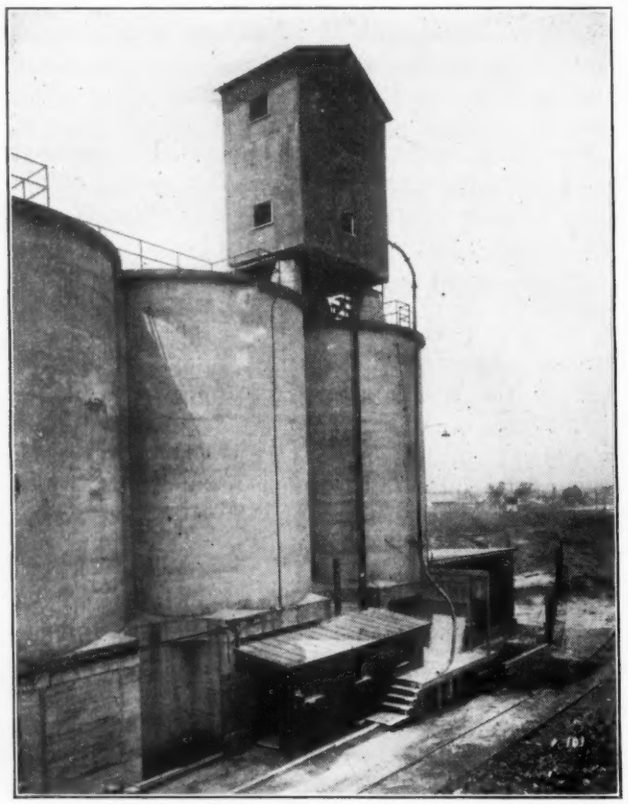
CONVEYING CHEMICALS

Via the Air Route

By William B. Spooner, Jr.

CHEMICAL and allied industries are among the larger users of mechanical conveyors, because they are essentially handlers of material in large amounts. But there is a big class of chemical materials for which a better method of handling than belt conveyors, bucket elevators, screw conveyors, overhead cranes and drag line conveyor is desirable.

This class includes the raw, intermediate and finished bulk material group and includes such things as dyes, fertilizers, insecticides, sand, sugar, spices, copra, wood chips, many dry chemicals, and a long list of unrelated and varied materials. You will notice that these materials vary greatly in size and density, but they are usually handled in bulk and are of relatively small units. Some of them are dusty. Many of them are easily contaminated. Most of them will be wasted in the process of handling by mechanical means. It is in the chemical and allied industries that these materials are most extensively used.



Suction system installed in the plant of a soda ash consumer and used for unloading this material from freight cars for conveyance to the concrete storage silos.

A method of handling these materials is now beginning to come into general use. It is the method commonly known as pneumatic conveying. It is not new, although its successful development is comparatively recent.

As a matter of fact, the idea has been experimented with over 50 years. As far back as 1865 the enormous amount of labor involved in handling grain prompted experiments in England of pumping grain through pipe lines. This was not strictly penumatic conveying but the experiments led to others where air was the conveying medium.

An American, A. K. Williams, in 1867 devised the first practical pneumatic conveying system, used in handling cotton in loose form by fans through pipe lines, but it was not until an English engineer, F. E. Duckham, completed in 1892 experiments he started in 1888 that modern penumatic conveying really began.

First Principles Mastered

Duckham designed a mixing nozzle and air lock which placed pneumatic conveying on a new basis. The mixing nozzle made it possible to proportion the amount of grain to the amount of air, so that the movement of material through conveying lines was continuous over long distances. The air lock provided for uninterrupted discharges of material and continuous automatic operation of the system.

English, Dutch, Germans, and American engineers worked out additional features and improvements. The grain industry in Europe adopted the method generally, and by 1900 many other materials were being successfully handled. The success of these pneumatic conveying installations brought many competitors into this field, whose experience was limited. The unusual technical problem which developed in applying pneumatic conveying to wider fields of use naturally led, under these conditions, to installations which did not function properly. Although the failures were due not to principles, but to the inexperience of the makers of the equipment, pneumatic conveying suffered in consequence.

Since the war, however, pneumatic conveying has thoroughly overcome their difficulties and established itself upon a sound practical basis. The experience of present makers is ample. They are thoroughly

familiar with the limitations as well as the adaptability of this method of conveying. To-day air conveying is constantly expanding its field of application and is being adopted as the most efficient and economical method of handling certain bulk materials.

A pneumatic conveying system is primarily a high velocity air stream in which the material conveyed is suspended. This is the fundamental operating principle. It is by this means that enormous amounts of sand are shifted from one part of a desert to another.

What is Pneumatic Conveying ?

This high velocity air stream can be produced either by induction, through the agency of a vacuum pump or exhauster, or by means of a blower, air compressor, or similar equipment. Thus we have two general types of pneumatic conveying systems, the vacuum and the pressure types.

The vacuum system consists of a suction nozzle, pipe line, a discharge devise which exhausts the material from the air stream without affecting the vacuum, and suitable apparatus for cleaning the air stream of all finely divided material and preventing it from being carried over into the vacuum equipment.

The pressure system consists of essentially the same equipment, except that a source of pressure is used instead of a vacuum apparatus, and that the discharge device is usually simpler.

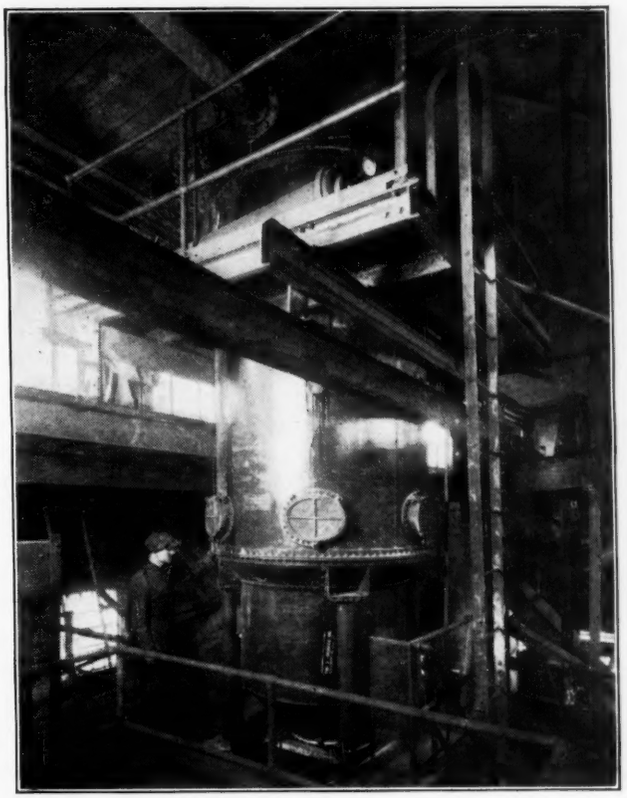
In the vacuum system, the material is drawn into the system by the suction nozzle, which is so designed that adjustments can be made to take care of a variety of materials and enable it to operate efficiently on each material without danger of clogging.

The suction nozzle is connected with the conveying line by a suitable length of flexible piping. The conveying line is usually of standard weight steel pipe, except at the bends, where harder reinforced surfaces are provided to take care of the wear which takes place at these points. The material is drawn in through the nozzle and then carried in suspension into the air stream through the conveying line to the discharge end of the system.

In the vacuum system, this discharge end consists of the recipient into which the conveying line discharges the material, an adequate discharging mechanism and a dust-arresting device. The incoming air and material enter the recipient at a tangent to its shell, and the sudden expansion of the air stream, combined with the effects of centrifugal force and the action of the baffles located in the recipient, cause most of the material to drop to the bottom.

Only the finely divided material in the form of dust enters the dust arresting device, which usually consists of an automatic bag filter located above the recipient where the dust is caught on the inside surface of the bags. This filter is provided with an automatic bag shaking device which periodically discharges the collected dust into the recipient below. The vacuum equipment handles only clean air.

The collected material in the recipient is discharged through a rotary discharge lock. This lock consists of a rotor with a number of compartments so designed that each compartment as it opens to the



An installation of a filter recipient for the purpose of unloading soda ash from freight cars for conveyance direct to storage bins.

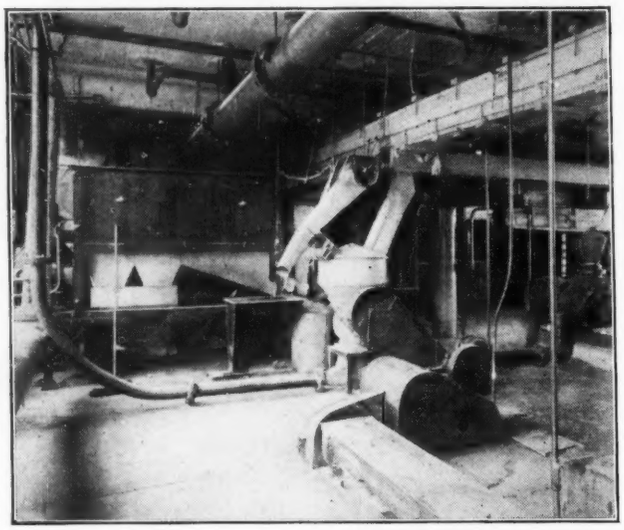
interior of the recipient is air-tight. As the compartment is filled with material, it leaves the interior of the recipient. Further revolution of the lock turns the compartment down to the point where air from the outside enters and the material is dropped into the bin or receiver provided for it. The design of this discharging mechanism will vary somewhat according to the nature of the material handled.

Conveying By Pressure

In the pressure type, the material is conveyed into the system by gravity from a machine storage tank or hopper. A rotary feeder operating on the same principle as the rotary discharge lock of the vacuum system supplies a uniform amount of material to the conveying air stream at a point close to the source of pressure. This pressure is obtained from a high pressure centrifugal fan, positive pressure blower, or air compressor.

Again the material is carried in suspension in the air stream to the discharge end of the system. If the material is not particularly dusty, or where the dust is not objectionable, a simple discharge nozzle is

used. This nozzle has a special device to distribute the material evenly and eliminate shoveling or "trimming" at the storage point or loading bin. Where dust conditions make it necessary, the end of the conveying line discharges into a standard discharge chamber, equipped with a dust collecting device, from which the material is discharged by gravity



Pressure system showing blower, feeder, ejector and section of conveying line for transferring material from one building to another over a distance of 325 feet.

into bins or storage piles. Such a system of handling is not only extremely flexible but makes possible a wide variety of combination.

In considering any material handling system, there are many features which are not always apparent on the face of the question. There are always certain specific advantages applying to the equipment in question which are quite obvious, but there are usually other advantages which are obtained as a result of the use of the proper system that are not apparent until the question is considered in all its phases.

As to the particular advantages of pneumatic conveying, you have:

1. Labor Saving:

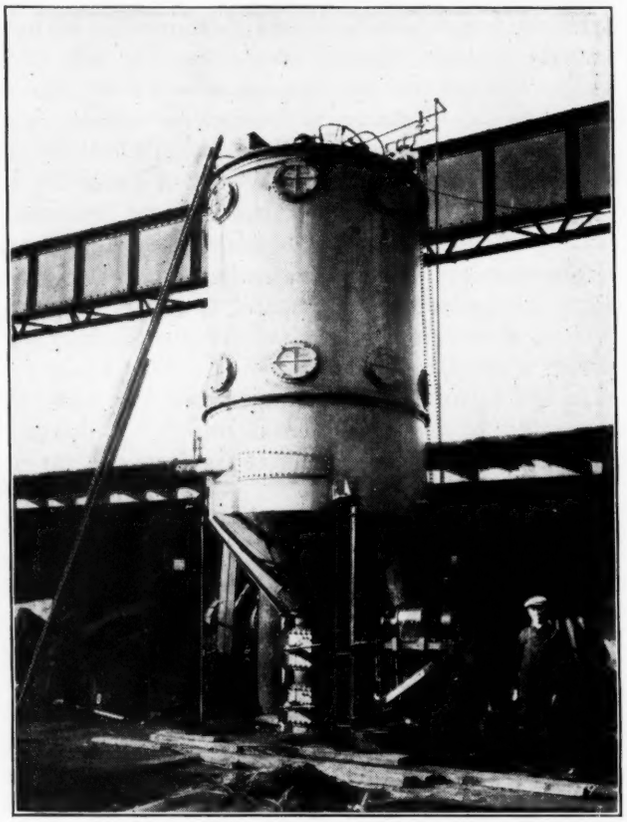
There are no shovelers, wheelbarrow men or any of the manual laborers usually associated with the handling of these bulk materials. One man can handle all the material down to the last shovelful directly from the point of receipt to the point of storage or use without any intermediate handling. Even where mechanical conveyors are suited to this bulk material, manual labor is often required to bridge the gaps made necessary in such a system by the plant layout. A pneumatic conveyor being nothing but a pipe line over most of its distance, it can bridge any of these gaps.

2. Dustless Operation:

There is no dust in pneumatic handling. This is of the utmost importance in connection with the handling of most of these bulk materials. It not only eliminates unhealthful working conditions, and occupational hazards but prevents an enormous amount of waste and spoiled material due to spillage and sometimes contamination. Of course, where the material handled is combustible, the elimination of dust also ends a very serious fire hazard. These pneumatic systems where they are handling combustible materials are adequately protected by suitable grounding against static sparks and, of course, the concentration of material inside the system is practically always above the explosive unit.

3. Lower Up-keep and Maintenance Costs

Since there are very few moving parts in a pneumatic system, maintenance costs are reduced to a minimum. Since the material does not come in contact with the conveying line except at the elbows, the wear is confined to these points, and even then it



Recipient showing two door type of discharge for a brace of materials. Note replacement wear plate on preseparator.

is not serious except when abrasive substances are handled.

4. Ease of Installation

A pneumatic conveying system is almost entirely a pipe fitting job The principal equipment is easily located and does not require much floor space. Conveying lines can be laid out to go over roadways or under them, up the side of a building or through it—or in short, wherever required.

5. Wide Range of Application

Practically every dry or semi-dry bulk material up to a certain size or weight can be more efficiently and

(*Continued on page 118*)

The Seven Lamps of Chemical Enterprise

By C. J. T. Cronshaw, M. Sc.

"Tremendously inspiring"—"Best since the addresses of Teeple and Haynes at the Institute of Chemistry"—"Should be read by every man in the chemical industry." In this wise three of our consulting editors, quite independently, urged us to print this address of the chairman of the Manchester Section, Society of Chemical Industry.

THE path of chemical enterprise is both long and sinuous, and beset with pitfalls; it must, therefore, be of importance, and moreover of interest to consider the lamps which illuminate the route so many of us must travel.

Particularly the organic chemical industry, has been for a decade and a half the ambit of much careful analysis and diagnosis, and has possibly suffered somewhat from such critical aid. Usually the results of such diagnosis have been confined to the single theme of the importance of research in chemical industry, but, as I hope to show as I proceed, successful chemical enterprise is much more complicated than an equation with one unknown. There are many principles involved, perhaps not all of equal importance, and the neglect of any of these lays bare penalties which may easily disturb and wreck the whole structure. Chemical enterprise is to some extent peculiar; in few realms of commercial endeavor is the liability to economic changes of such capital and vital importance.

The possible routes to chemical substances are usually both numerous and varied, and the ultimate choice is made, perforce, on general economic grounds. Consequently slight changes in price of a few products are sufficient to upset almost a section of chemical industry; and this same economic trend may often, further to complicate the position, bring new products into extended use. Moreover, economic factors often play strange tricks, converting useless by-products into the salvation of a moribund industry, and relegating hitherto profitable materials to the background. As the science of chemistry grows and expands, it robs, and even as it robs it bestows, not unfortunately always on its early victims, great and glittering prizes.

Research has, at various times, been divided into all sorts of categories. People have spoken of pure research, applied research, technical research, and sometimes of research in capital letters, and with almost a supernatural awe in the voice. That sort of research I am persuaded is the least valuable, and on careful inspection it usually turns out to be a vague theory that research is inherently so valuable it should be undertaken on a vast scale, and with little or no thought either for its quality, or its aims.

"The progress of any science," as Lord Curzon observed, "will always depend upon the character and ability of the men who devote their life to it, rather than the money expended in its name."

Pure research as I understand it means the prosecution of experiments or inquiries solely directed towards the acquisition of knowledge for its own sake. No reasonable person who derives his income mainly from the practical applications of science, or who has received a scientific training, will for one moment deny the value or the need for such research. It is important in that it is fundamental for the progress of the world and the training of subsequent generations of chemists, but it is no part of the duty of chemical enterprise to do other than extend a financial helping hand to pure research.

With technical or applied research, chemical enterprise is, of course, deeply concerned. It is the lamp to illuminate the darkness lying in the future. Its importance has quite properly been stressed in every public critical analysis to which chemical enterprise has in the past been subjected; but this repeated emphasis has only, in my opinion, been rightly necessary because of the danger, since the results of research must necessarily lie in the future, of its being abandoned altogether. Thus both the value and danger of technical research arise because it is concerned with the future, and the shortsighted have sometimes yielded to the apparent necessity of the present.

No matter of research is easy, but technical research is, quite apart from the inherent obstacles of the specific problems, a matter of some difficulty, in that there is no easy measuring stick to hand with which

*Chairman's Address to the Manchester Section on October 7, 1927

to test its excellence; no ready criterion of the amount of expenditure necessary; often no surety of ultimate reward; no positiveness that the goal really exists; and because of all these, I feel that the supreme difficulty in technical research is the difficulty of its wise direction. Sir Ernest Rutherford, at the British Association in Liverpool, speaking of this same difficulty of direction, remarked that "it is fatally easy to spend much money in a direct frontal attack on some technical problem of importance when the solution may depend on some addition to knowledge in some other field of scientific enquiry which can be gained possibly at a trifling cost."

Stripped of its technical obstacles, applied research is therefore a problem of marksmanship. Just as the fighting efficiency of a battleship depends firstly upon good guns, the right ammunition, and efficient shooting, but fundamentally on target control, so good research is target shooting; in other words, accurate direction towards a valuable objective.

May I crystallise my remarks on research by saying that the only illuminant to burn in the Lamp of Research is the oil of good direction.

Precision

Having said a word on the thought that chemical enterprise must give to the future, we can turn to its problems of the present. As the world extends its knowledge and the scope of its endeavour, it becomes more exacting. The present century is growing into an age of the minute. In the cotton industry much of the development is towards finer counts; in the motor industry the tendency is for finer tolerances. In a recent motor catalogue I observe that more than 5000 operations are gauged to one thousandth part of an inch, and over 100 to a thirtieth of the thickness of a human hair. Catalytic reactions, of growing importance, are in the domain of the minute. That division between acidity and alkalinity which we used to call the neutral point has grown into a domain of p_H values. And these observations bring me to my second lamp—the "Lamp of Precision."

Chemical products are tending more and more to be sold, not for what they are, but for what they will do, and this naturally entails a uniform standard of performance. A dyestuff is sold not on its chemical composition, but because it will dye an almost definite weight of textile material to a desired shade, and with a defined degree of permanence to the factors, such as light, acids, alkalis, chlorine, heat, it will have to withstand. An organic rubber accelerator —for example, diphenylguanidine—is sold not so much because it is this or that chemical substance, but because it will in a definite rubber mix effect a satisfactory cure at a definite temperature and within a defined period of time.

There are many other examples: insecticides, drugs, seed disinfectants, dispersing agents, wetting-out agents. Moreover, all these are concerned with what I might term the chemistry of the relatively small effect, in that the result produced is out of proportion to the quantity employed. "Stainless" steel is an example of what I call the small effect, and if chemical enterprise is to be equal to its task it must keep well trimmed the Lamp of Precision. Fortunately, so long as this need for accuracy is recognised, the lamp is to our hand, for the practice of analysis is the oldest section of chemistry, but the analyst, if he is to help chemical enterprise on its future path, must give even finer methods of precision, and of enlarged scope and technique. He must give us precise methods for evaluating effects rather than methods for determining composition The Lamp of Precision must, by its light, drive away all empiricism.

Changing Chemical Sales

Chemical enterprise, is more and more selling an effect rather than a substance, and as a natural consequence the problems of the general customer are becoming those of the chemical industry itself. We see this in all sorts of ways: the development of acetate silk had to synchronise with the development of new dyestuffs, and new dyeing methods; the development of lacquers hinged upon the development of suitable methods of application.

It may be possible that this question of application of chemical products is a fundamental principle of all chemical enterprise. Perhaps synthetic motor fuel will not only abundantly assist natural supplies, but ultimately revolutionise the engine by reason of some new and unknown property, which initially is merely a problem to be solved before successful use is assured. Some of the greatest drawbacks to the use of chemical products have turned subsequently to be amongst the greatest virtues.

As a general proposition, it is easier to discover a new product for a specific use than invent a use for a new product. There have been occasions when the service which pure research has expected from chemical enterprise has been the discovery of uses for new products whose sole claim has been their novelty. Now, because the effect of a product is becoming more important than the product itself, it is essential that chemical enterprise shall have another lamp to guide its path, and that is the "Lamp of Service."

Service

The importance of this Lamp of Service was early realised. Let me quote to you what Sir W. H. Perkin said on this subject so long ago as 1896:—

"Before aniline purple could be introduced for dyeing woollen and mixed fabrics, weeks were spent at Bradford in finding out suitable methods of applying it. Not only had the difficulties welded to its manufacture to be grappled with and the prejudices of the customer overcome, but a large amount of time had to be devoted to the study of its applications."

This type of service was probably first developed logically by the great German dyestuffs firms, but

it has had a prominent place in the development of the British dyestuff industry. It is not, however, something peculiar to the dyestuffs business, but a fundamental part of the function which chemical enterprise must play in any country. No one who has been in the United States recently, and seen what they are doing, will deny the importance of the Lamp of Service.

On this question of service, there should, however, be sounded a note of warning. It is fatally easy to exaggerate what a substance will do. Some of the old advertisements of patent medicines, sufficiently illustrate this point. The patient justification of results is better infinitely than wholesale claims. The Lamp of Service must burn brilliantly, but only by reason of the wick of honesty.

Unity

And now we come to a very important lamp, which I have called, for want of a better designation, the "Lamp of Unity."

Chemical enterprise cannot be good in parts—it survives only by reason of the strength and well-being of the whole; and this can only be measured in terms of the financial and commercial health of its manufacturing ability. The heart and kernel of successful chemical enterprise is efficient manufacturing operation, and this is only possible under the rays of the Lamp of Unity. Precision; organisation (a word with a bad past but, properly understood, having a glorious present); chemistry; engineering; physics —all are necessary; but it is only the blend and unity of these in equivalent excellence that can ensure successful manufacturing operations. One observes that in any critical survey of British chemical enterprise this important item seems never to have been discussed at all; and although there have been addresses which, if not pointing the finger of example to Germany, have directed it towards the United States, it has apparently escaped observation that in the United States the problem of manufacturing operations has been appreciated at its proper value and in many directions realised its greatest achievements. This is not due to any national characteristic, but because American industrial enterprise as a whole is finally convinced of the urgent necessity for this Lamp of Unity.

Margins of Profit

The days when a new product could be sold at a price which would both allow a rich reward for the inventor and a high cost of manufacture have departed. The world has opened up so much, and means of transport become so extensive and so flexible, that nearly everything, both new and old, is competitive.

Magenta started its commercial career at a price of about 3s. an oz.: to-day no dyestuff, however valuable its possible particular properties, could survive such a price. Acetate silk and viscose compete in a general way with silk and cotton; synthetic resins with natural gums; whatever is, has its value and its new possibilities; but whatever its properties and its virtues, it must still come within the ambit of price presented by products of analogous utility.

All this inevitably means that the initial manufacture of any product must be more fully examined and perfected before any manufacture can begin. Often in the past chemical manufacture grew up and solved its problems as it grew; to-day, and even more in the future, chemical manufacture must start grown up at the beginning. Manufacture to-day is almost a science; and there is a vast difference between manufacturing a product and making it on the large scale.

The spirit to burn in the Lamp of Unity, and there can be no other, is the spirit of thrift. Thrift means to the chemical manufacturer the highest standard of performance for everything. It means the highest yields; the best process; and the best use, therefore, of labour, time, material, and money. It is the chemical definition of the word "immaculate."

Chemical enterprise with this Lamp of Unity need fear no competition and no comparisons.

Judgment

There is another lamp of chemical enterprise, and that is the "Lamp of Judgment." If this quality is not most important of all, it is, perhaps, most difficult to find. The faculty of judgment can be fostered, but it cannot be created. Research may provide the information, manufacturing operations may have their unity and thrift, service may be all that we desire, but it is the Lamp of Judgment which must illuminate the whole area of chemical enterprise.

The "when" and the "where" are in any enterprise of great importance: the time, the place, the material. All sorts of factors have to be taken into account—questions of transport, availability of materials, proximity of markets; but even with the guidance derived from these factors, the ultimate decision will often rest upon impartial and clear judgment.

The problems which arise in chemical enterprise of to-day are so many-sided, and often such a seeming balance of pros and cons, that in the end, despite all the wonderful resources of chemical industry to-day, the decision can come only with a clear-eyed sense of judgment.

Chemical enterprise of the future will succeed best on a broad basis. There are, inevitably, so many cognate products to be made which can properly only exist contiguous to their respective principal manufactures. The synthetic production of methyl alcohol best exists adjacent to synthetic ammonia, and once you get the starting point, other manufactures inevitably follow.

There is no other course. You have a consideration which even to-day organic chemical industry has to face—the problem of where to stop. Chemical enterprise, if it is to be successful, is bound to become larger in scope, and the size of the industrial unit

increase. I think there is nothing to be alarmed at in this, because it is going to be an asset, and the more synthetic we become in our methods the more will chemical endeavour be geographically concentrated, and the greater our dependence on the coalfields. This tendency of the enterprise in the very nature of things to become fundamentally large in its scope does bring, perhaps, some new problems in its train, in that chemical enterprise will tend to become a community; it will enlist in its service the chemist, the engineer, the physicist, the labourer, and the artisan. The psychology of this "group mind" will require patient study. You will have the imagination and ardour of the chemist; the constructive skill of the engineer; the detailed and logical mind of the physicist; the pride of the craftsman; the honest and ungrudging toil of the labourer.

The problem, therefore, of its government and its correlation will require tact; wisdom and fairness; and statesmanship equivalent to that necessary for the well-being of a country, and this reflection brings us to the "Lamp of Leadership."

Leadership

Much of the success of chemical enterprise in the future will depend on whether it is able sufficiently to command this quality.

Good leadership is not a solitary quality. It has been said, "An emperor who is his own council of ministers in peace, and his own general staff in war, is unlikely to leave behind him any considerable or coherent body of political theory." It is equally true that the industrial leader who does likewise is also unlikely to leave behind a prospering and continually developing enterprise. There is a tyranny of thought and action which in industry is in the long run as fatal as any political tyranny. The will to play the tyrant exists in every man; it is one of the deadly sins to which human nature is liable. Good leadership is not a tyranny; it means efficiency; personality; urbanity; the capacity for suspended judgment; idealism; and appreciation of value; team work; and the genius for doing the right thing because it is the right thing.

Good leadership will, therefore, create good leaders, and will surround itself with good leaders. It is the business of good leadership to be prepared for all eventualities, not as a result of the inspiration of the moment, but by the careful consideration of all the factors in advance of the eventuality.

Leadership must, as Lord Moulton remarked,"take the necessary time and reflection before we commit ourselves to any course of action. The delay of deliberation is far less than that of defeat."

Leadership means much: it means the knack of inspiring a large body of different sorts of people with the same enthusiasm for the same objective; with creation of a constitutional form of government within the undertaking; with making every man, however insignificant, feel that he is an important link in the chain, or to change the metaphor, of being a king in his kingdom; it means the building up of an organisation which is not only capable of solving its own problems, but of providing its own training ground for its high positions. The industrial leader is surely not he who can brilliantly extricate it from the chaos into which it has drifted, so much as he who by careful staff work, and the considered solution of problems before they occur, can keep it from ever descending into chaos. It is true that the old method seems more brilliant, but the other way is the real way, and is more difficult since it does not depend upon erratic moments of inspiration.

Vision

Now we come to the "Lamp of Vision." Thus far my lamps have been mainly concerned with the well-being and stability of the enterprise, but it is of capital importance that in its vision it should be clear and definite as to its purpose and proper function in a modern world.

I think, in considering the point, we have to go back to fundamental things. Nature is, after all, the greatest chemist, and is, moreover, pre-eminently an organic chemist. In the inorganic field Nature has confined herself to relatively few materials, even a goodly number but still relatively few, whereas in the organic field we have natural dyestuffs, perfumes, coal, oil, textile fibres, resins, drugs, tanning materials, leather, to say nothing of the complex structures of which the animal and vegetable kingdoms are comprised, and from which individual products are derived.

The ultimate proper function of chemical enterprise, I would say, is to improve upon Nature—a supremely difficult operation—particularly and mainly with respect to the time factor.

Elements of Time

Civilisation has arrived at such a point of complication that it can no longer afford to wait for Nature. Nature acts in units of a year, a century, or a millenium, as the case may be, and the modern trend of chemical enterprise is to reduce this to units of days and weeks.

The only section of organic chemistry which has almost completely surrendered to chemical enterprise is that of synthetic dyestuffs; but essential as they undoubtedly are, dyestuffs from the standpoint of ultimate national economics are amongst the least important of the objectives of organic chemical enterprise. Synthetic resins will surely have to make up for the inevitable shortage of natural resins and gums; artificial silks already enable cellulose, Nature's largest single production, to replace the patient and seasonal output of the silkworms. Synthetic methyl alcohol and synthetic acetic acid have already enabled us to dispense with the old wasteful destruction of cellulose. Synthetic petrol, of which perhaps

(*Continued on page 104*)

August Merz

on

The TARIFF

and

American Coal-Tar Chemicals

THE story of the American coal tar chemical industry from the early eighties to nineteen hundred and fourteen is a story of many fond hopes and many bitter disappointments.

The widely divergent tariff policies of the major political parties made every Democratic Congress a definite menace to all industries requiring protection against the low cost of foreign labor. Every manufacturer desired his raw materials placed on the duty free list in order that he might benefit by the low prices resulting from foreign competition. Every manufacturer desired his finished products placed on the protected list. But many a finished product is a raw material for the next stage of industry. Coal, the finished product of the mine, becomes the raw material of the coke oven. Coke, and its by-products, the finished materials of the coke oven, become the raw materials of the steel and chemical industries. And so, even the finished dyes become raw materials of the textile mills.

In the wild scrambles of tariff revisions, each industry sought to convince Congress that the products it purchased should be on the free list, while the products it sold were entitled to maximum protection.

The larger the industry, as to men employed or capital invested, the greater the influence it could and did yield. The smaller the industry, the less attention it received. The economic importance of an industry was measured more by the number of hands employed and amount of capital invested than by the economic importance of its products. The term "key industry" was still to be coined. Hands employed represented votes. Capital invested represented stockholders, who in turn represented votes. And votes impressed the legislators. The textile manufacturers' employees and stockholders weighed the balance, and as a result dyes never received really adequate protection at the hands of either political party. The textile mill's raw material was considered more important than the dye manufacturer's finished product. One man's meat was another's poison.

These conditions continued up to 1916 when the Hill Bill was under consideration.

As a matter of fact had dyes been on the free list at that time the American manufacturer would have had ample protection. All Europe was too busy with the war to bother with the production and shipment of dyes for America. Thus the American industry was working under the protection of a virtual embargo.

Up to the year 1916, each dye manufacturer had sought to have the intermediates required for the production of his dyes placed on the free list. For his finished dyes, of course, he sought tariff protection.

True under one of the earlier tariff laws the dye industry was well protected and had fond hopes of growth. It was during this period that a number of plants were started. However, that sunshine was soon obscured by the clouds of a tariff revision. Gradually all but three or four of the plants vanished from the field.

When the world war came, consumers suddenly faced a dye famine. Stocks were depleted rapidly. It will be remembered that business in 1913 was not good. The stocks of imported intermediates had been allowed to drop because of the prospect of still poorer business. When the war came, very few believed it would last more than a few months. It seemed foolhardy to plan much in the way of development for the production of the necessary intermediates. By the time plants could be in operation, the war would be over and the need for them would have passed.

At best, the American industry had produced less than ten per cent. of the total domestic consumption of dyes. This amount was represented by a comparatively small number of the many individual dyes required. Only very few of the intermediates required for the manufacture of these dyes were completely American made. The number of dyes which could be produced entirely from the few wholly American made intermediates was ridiculously small.

Processes had to be developed from the initial stage to the final product.

Plants had to be erected.

New types of apparatus had to be designed.

And even chemists and technical men had to be specially trained.

Germany, withholding dye shipments on the plea that England would seize them as contraband, always permitted the hope that some might be forthcoming soon. Meanwhile the textile industries in a turmoil crying for dyes faced complete shutdown. The American dye manufacturer in a quandary was wondering as to the best course to pursue. The one lacked dyes, and the other the wherewithal for their production. The small American dye industry bore the same relation to the great textile industries as does the hair spring to the watch.

Heydey War Developments

Prices soared and many were tempted to enter the dye field, little knowing the financial hazard involved. Fortunately, when the war came, a small nucleus of American dye manufacturers was still operating. Many times they had seen the handwriting on the wall. Often certain intermediates had been difficult to obtain at reasonable prices. Research had been undertaken with a view to becoming independent of the foreign market. Thus the domestic dye manufacturer was not entirely unprepared for the crisis.

Due to the acute shortage, the dye consumer did not question prices, nor was he very particular as to quality. Inferior qualities were easily disposed of at prices which yielded a profit and enabled renewed efforts by some who under ordinary conditions could not have stood the strain of a stock of unsalable goods. Accordingly, while some profited temporarily, the industry benefited permanently by the experience gained. With experience, processes and products improved rapidly.

In the space of about six years, the industry had sufficiently developed to enable the head of one of our leading textile mills to state that, to the extent of ninety per cent. of the dyes consumed in his plant, he was entirely independent of Germany. The other ten per cent. used, merely for convenience, could be dispensed with in case of emergency. The product of this mill is, and always has been, the standard of its kind, ranking with the best made anywhere.

The U. S. Tariff Commission's Dye Census, 1926, shows what has been accomplished by the American coal-tar chemical industry.

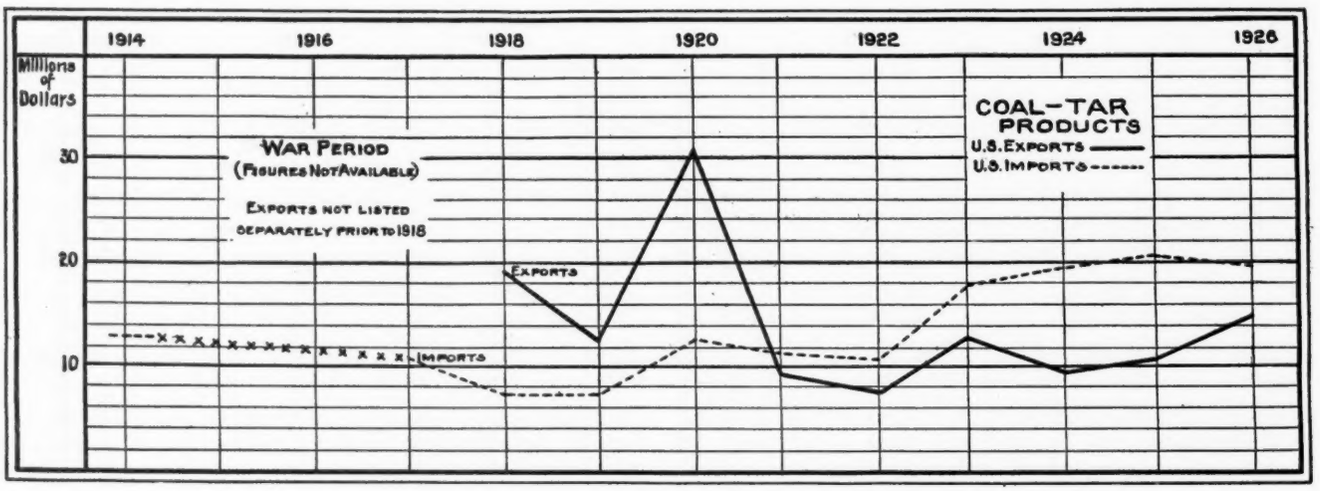
In 1913, the output of coke in the United States was about 46,000,000 tons. Over 3300,0,000 tons, or 72.5%, came out of beehive ovens, and almost 13,000,000 or 27.5%, from by-product ovens. In 1926, the coke output equalled almost 56,000,000 tons, of which over 44,000,000 tons, or 79.5% represented by-product coke, and only 11,000,000 tons, or 20.5% beehive coke. This is a complete reversal of the percentages produced in the two types of ovens. It is a great step forward for the coke industry, and also for the coal-tar chemical industry.

From Ten to Ninety Per Cent.

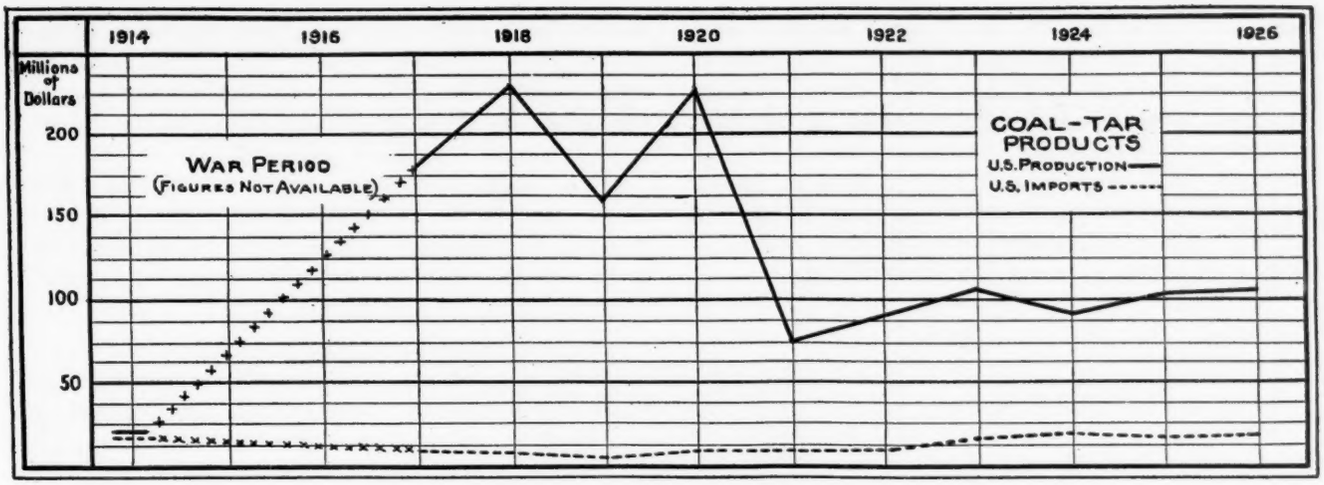
The first official dye census published was for the year 1917. Official statistics of domestic production are not available for the earlier years. The consensus of opinion is that for the year 1913, the domestic production of dyes amounted to less than ten per cent. of our consumption. The 1926 census reports that fifty three plants produced almost 88,000,000 pounds of dyes valued at over $36,000,000.

This census also reports a domestic consumption of 65,000,000 pounds including imports of about 4,600,000 pounds. In other words, 93% of the dye consumption was American made. Again we have the figures of 1913 reversed in 1926.

In the field of intermediates, the statistics are somewhat confusing. The production figures must naturally pyramid. Thus nitrobenzen, listed as an



The balance of our foreign trade in Coal-Tar Chemicals has swung against us since the war due mainly to Germany's recovery of oriental markets for dyes.



The tremendous strides made by the American coal-tar industry are vividly portrayed here. Allowing for the natural decline following the war period, production has been steadily in the ascendency since 1921.

intermediate, is converted to anilin and benzidin. Anilin in turn is converted to dimethylanilin, and other products. Dimethylanilin is also further converted to other intermediates. All of these are included in the list of intermediates produced. Naphthalene sulphonate is converted to beta naphthol which in turn is converted to many other products likewise listed as intermediates. Large quantities of heavy chemicals are required in the manufacture of intermediates. It is estimated that in 1926 the coal-tar chemical industry consumed other chemicals, i. e. acids, alkalies, halogens, ammonia, salt, nitrite of soda, etc., to the amount of about a billion and a half pounds, valued at about $40,000,000.00.

Even Greater Advances

Figures for the 1913 production of intermediates are not available, but the quantity produced was very small indeed. It is quite safe to assume that it was almost negligible. The total produced in 1926 is 229,000,000 pounds while the amount actually sold is given as 87,000,000 pounds valued at $19,000,000. This difference in production and sales is due to the fact that most dye manufacturers make intermediates for their own use. The amount imported is given as 1,500,000 pounds valued at $593,000. Comparing the domestic sales with the imports, we find 97% to be of domestic origin. But if we compare the total domestic production with the imports, we find that it accounts for over ninety-nine per cent. Again we have the figures reversed. This is another remarkable achievement.

Our dye industry has been made independent of foreign sources of supply. Our heavy chemical industry has become assured of an outlet for a tonnage of its products required in the coal-tar chemical field.

Relatively far greater advances have been made in the fields of coal-tar medicinals and fine chemicals, which include flavors, perfumery materials, pharmaceuticals, phenolic resins, photographic developers, and synthetic tanning materials. The total production in these branches amounts to 23,000,000 pounds valued at $17,000,000. Imports recorded are very small in amount. Production in this branch has developed from almost nothing in 1913 to very nearly 100 per cent. of our requirements in 1926.

The division of synthetic organic chemicals of non-coal-tar origin also shows remarkable progress with a production of 214,000,000 pounds, valued at $38,000,000. While not in the coal-tar realm, it is in many ways closely affiliated.

Having provided the necessary hair spring we may feel assured that the wheels of American industry will continue to turn regardless of foreign conditions. It is very apparent that this industry is a valuable asset in our national business. Many products of the industry are of vital importance to the national health and comfort. And no one can doubt that this industry is able to supply products absolutely essential to the defense of our nation. Can there be any doubt that this industry is an asset which must be kept alive ?

The voices of the ten thousand men employed by the industry, clamoring for protection on its products, could barely be heard in comparison with the voices from other industries. Ten thousand men might find employment elsewhere, but if this particular ten thousand must seek other work, there will be many more ten thousands also seeking work. When the watch is without the hairspring, all the wheels stop turning.

Our $140,000,000 Market

Recently much has been heard about the great international chemical cartel. Its object is said to be the rationalization of industry, whatever that glib term may mean. In ordinary language it appears to mean reduction of costs, advance of prices, allocation of markets, and recapture of trade formerly held.

What a choice morsel our domestic market in dyes would be for Germany, at least ninety per cent. of our dye consumption, at any price the cartel might

choose to make; all the intermediate business necessary to this dye production; all the fine chemical business; and all the incidental heavy chemical business necessary for the production of the intermediates, dyes and other coal-tar products. It would amount to at least $30,000,000 in dyes at present prices, about $50,000,000 in intermediates, $17,000,000 in fine chemical business, and probably enough in heavy chemicals to round out $140,000,000.

Fortunately, that is impossible under the present tariff act. But how do we know that the tariff will stand as it is ?

France has already tried to force concessions. The French alone need not worry us very much in so far as the coal-tar chemical industry is concerned. But France is no longer alone. How do we know that the French effort was not a part of the scheme ? Germany will do all in her power to tear down our tariff wall. Her agents, direct and indirect, will bore from within. What better way than to have the American investors in her industries bore from within ? We know how well satisfied the American utility companies are with the "customer ownership plan." I. G. stock widely distributed in this country would be an efficient way of bringing the desired influence to bear.

What of the Textile Market ?

And, having broken down our tariff wall, how long would it take to damage our industry ? That depends on the backbone of those in the industry. But it also depends on their financial ability to stand the strain. And having obtained the desired morsel, what would the German industry do to the American consumer of dyes ? Prices would go up of course. But the morsel might include a large share of the textile and other business. Why not go to the extreme ? If the cartel withheld certain essential dyes it could control a valuable portion of our domestic textile business.

In 1914-15, the German agents reported back to Berlin advising against the shipment of dyes to this country. Their reason was plainly stated to have had its object the crippling of the American industry, with consequent unemployment. If that was the German thought in 1914, will it be any different now ? It has been stated that Germany has no intention to invade our domestic market. The main object of the new cartel is said to be the preservation of its present foreign markets against further inroads, by expansion of the American industry. In spite of such pleasant assurances it would be unwise and foolhardy to drop our guard for even an instant.

Assuming that Germany did recapture our domestic market and then proceeded to advance prices inordinately, who would care to come to the rescue of the American dye consumer by attempting to create competition to force the prices down ? We must remember that the war produced conditions favorable for a rapid, as well as a reasonably certain, development of an American industry, from weakness to power, in a very short space of time. It is not feasible to shut down a chemical plant and disrupt the organization while awaiting a favorable opportunity to resume operations. It is said that opportunity knocks but once. In 1914, America was alive to the opportunity, mainly because of necessity.

If our citizens could be taught to appreciate the direct, as well as the indirect, importance of this industry to themselves, there would be no doubt as to the result. The moment they become apathetic and indifferent, we face danger.

Anti-Trust Laws for All

The situation is very serious, but it is by no means hopeless. We have an anti-trust law which prohibits combinations in restraint of trade. The recent speech of Assistant Attorney General W. J. Donovan at Atlantic City, indicates that foreign trusts have found this law to have teeth for the foreigner as well as for the American.

Even though we may hope to find in the much reviled Sherman Anti-Trust Law a friend in our need, too much dependence should not be placed upon it. Anti-trust litigation has usually been a long and tedious process. Cases against some of our domestic corporations have been concluded only after years of litigation. In domestic cases, government investigators have comparatively easy access to the records of the corporations. In cases against foreign corporations, the government would have no power to enforce such inspection. Probably long before the final court decision could be handed down the damage would have been done. There is little use in locking the stable door after the horse has been stolen.

In addition to the protection afforded by the rates of duty imposed in the various schedules of our tariff act, we have anti-dumping provisions. These should effectively prevent the unloading of foreign goods on domestic markets at dumping prices. The application of these measures is generally slow, and not always sure. Much damage may be done before the remedy can be made effective.

How to Break Our Tariff

The right of United States agents to examine the records of foreign corporations has caused much irritation abroad. As a result there is a movement on foot to induce Congress to repeal the anti-dumping provisions of our tariff act.

Another proposal, made in an effort to stimulate our foreign trade, is to reduce all our tariff rates by a uniform percentage. Such changes would exactly suit the foreign industrialist desiring to break down our tariff wall. Our tariff laws should be framed for our national welfare, not to meet the convenience and pleasure of the foreign industrialist.

No tariff act is perfect. Could one be passed to-day, it might be found to be imperfect to-morrow. Business would be hampered much less by piecemeal modification of rates than by a wholesale revision. The present act gives the President power to modify rates.

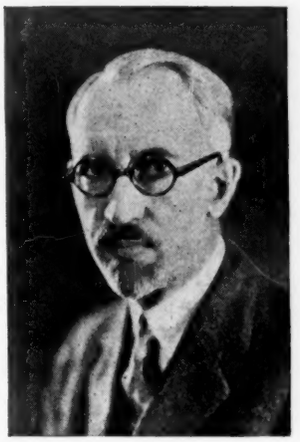
(Continued on page 110)

How the Better Commercial Utilization of

HARDWOOD TAR

Might Help the Wood Chemical Industry

By L. F. HAWLEY[1]



BY-PRODUCT utilization is no new experience in the hardwood distillation industry. In fact, the principal products of the industry today were formerly unrecovered by-products. First acetate of lime, then methanol, was changed from a by-product of charcoal manufacture to an important primary product. The tar, however, is still in an intermediate stage of development, being only partly utilized in making products for sale. This unsatisfactory condition must be remedied. Market conditions in other wood distillation products make it imperative that tar be raised, and raised rapidly, to a status of complete utilization.

The utilization of hardwood-tar has long been a fascinating subject to experts and others not so expert. The tar was so complex, and so little was known of its actual composition or properties, that good imaginations could easily suggest the most glowing possibilities. The hackneyed example of the packers' utilization of pigs was seriously cited as proof that tar could also be completely utilized, and the wonderful industrial developments in coal-tar chemicals were pointed out as the kind of result to be expected when wood tar was properly tackled. Perhaps wood tar has not been properly tackled, or perhaps the analogies between coal, pigs, and wood are not precisely analogous; but whatever the reason, there is much wood-tar still utilized. In the present economic emergency of the industry, let us cogitate a bit on practical means of making that unused tar into profitable products.

From Present to Immediate Future

Fortunately, it is not necessary to start from the beginning, since large quantities of various wood-tar products are already made and sold. In fact so much has already been accomplished that *expansion in present lines may be sufficient for a first step in accomplishing our purpose* without any further research on composition, properties, or new uses.

This, of course, is not a brilliant suggestion. It does not include the possibility of showy and expensive research. Vivid imaginations have here no opportunity to prophesy extraordinary new products valued in dollars per pound, nor a large new chemical industry based on wood-tar as a raw material. It is even so lacking in brilliancy that it may seem to be nothing more than a recommendation to keep on as we are; but for all that, as the details of the plan are disclosed, it will seem radical enough to satisfy the most exacting.

The very first requirement of this scheme is a fully co-operating industry, and not simply isolated endeavors of single plants or small groups. Perhaps such a requirement is impossible of fulfillment; if so, this discussion may as well stop herebefore it has really started. We believe, however, that the proper co-operation can be obtained, and our plan will be outlined on that basis. The procedure as visualized would be something like the following:

1. Select a few uses for tar products which seem most promising for expansion.
2. Collect and correlate all available information on the tar products most suitable for such uses.
3. Prepare standard specifications for these products and plan to sell only material which complies with the specifications.
4. Then get ready for increased production and go ahead with a general selling campaign.

The selection of the most favorable uses must be made from the standpoint of the possible expansion of the use itself and the markets, and also from that of the fullest possible utilization of the tar. It would be foolish to concentrate at the start on products which require only a small number of the tar constituents or which under the best conditions have only a limited market. For instance, the manufacture of liquid Guaiacol is not important, even though it may sell at a high price, because it requires only a very small percentage of the tar constituents and its uses could not be greatly expanded by any kind of selling campaign.

From these standpoints a wood preservative might be one of the products chosen. About 50 per cent of a given quantity of tar would be put into such a product, and the possibilities of the market are sug-

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gested by the fact that 200,000,000 gallons of oils are now used annually for wood preservation, and consumption is still on the up-grade. Perhaps there are some other promising uses which can take the pitch and light oils, and these should be chosen so as to make as complete a utilization as possible of the total tar.

Pool Technical Resources

It next becomes necessary for all parties to contribute to a central agency all of the information they have on the manufacture, sale, and properties of the products selected for co-operative action. This is for the purpose of obtaining facts on which to base the standardization of manufacturing methods and selling specifications and from which to collect ammunition for a selling campaign. The standard specifications must be prepared in the light of the very best information available on the relation between composition and properties. The ease of manufacture must also be kept in view as well as the most desirable properties. It would be a fatal blunder to draw specifications so rigid that few could make the approved products. Obviously, the matter of standardization is a very delicate one. Not only must complete information be available, but it must be applied with intelligence.

Then everything is ready for the selling campaign. I will not suggest any procedure in this mysterious and esoteric field—I know a lot of the words but I don't know what they mean, so that I shall have to leave this to "pep," "personality plus," "sales pressure," and their co-workers. I have only tried to suggest what I conceive to be the foundations on which any successful selling campaign must be built, viz. complete technical information on the products and the assurance of a supply of material of standard quality.

Objections Analyzed

There are two parts of the program I have outlined which at first may seem undesirable for plants already engaged in making tar products, but which on closer study are found to be actually advantageous. The man in charge of an existing tar plant may quite reasonably ask how it is going to help him to tell everybody about the best specifications for a certain product, and perhaps to support a control laboratory to test the other man's products. The answer requires a bit of analysis. He is perhaps the only producer or one of a very few producers of a flotation oil, we will say, for which he is slowly building up a market. It might seem that the advent of another producer would be the worst thing that could happen to that market. But there is something far worse—and that is a plant which tries to become a producer and fails on account of the poor quality of its product. Suppose this newcomer sells or gives away a few shipments of "wood-tar flotation oil" which on account of poor quality cannot possibly be used—which hurts the market most, this fellow or a successful maker of standard products ?

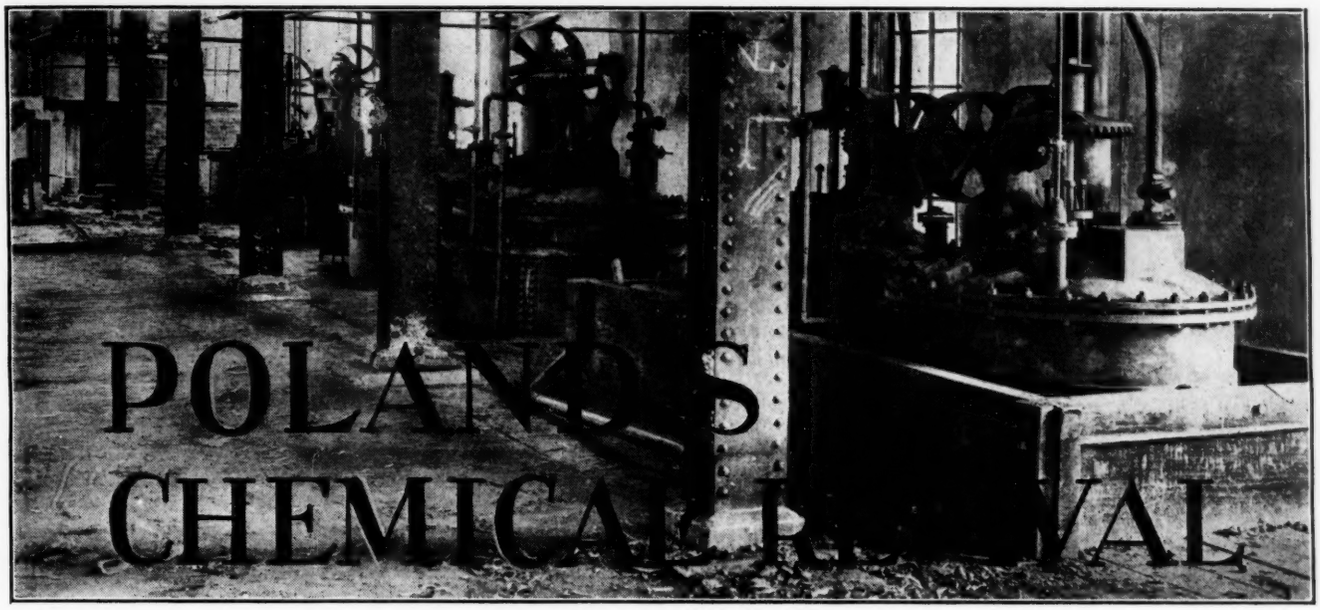
An actual instance will serve to make this point clear. At about the time hardwood tar products were first used as flotation oils and it was found that for certain ores a good grade of wood tar itself was about as suitable as any oil distilled from it, a broker obtained a contract for several tank cars of hardwood tar. The order was so big that the tar had to be purchased from several different plants. The first tank car was very satisfactory and so was the second, but the third came from a plant which, instead of supplying the original settled tar or slightly steamed tar, filled the tank with a thick, heavy residue of very thoroughly steamed tar. It was winter, the tank had no heating coils, and after the car and tar came back to the wood distillation plant (which it did in due time) they had to wait until spring before they could get the tar out. The whole episode probably had a very depressing effect on the use of wood-tar products for flotation oils and is an example of the disaster which may result from uncontrolled and ill-advised attempts to break into a new market.

Possible Later Developments

There is another way in which additional producers of standardized products would be helpful. Suppose an endeavor is being made to develop a new use for a tar product and the prospective customer asks what the output is. If the answer shows him that only a little more is being made than he alone might require, he will hesitate a long time before he starts using a product with such a restricted supply. But if it can be said that ten other plants can furnish exactly the same product, he will be more inclined to try it and to use it if found satisfactory.

The co-operation thus far indicated by the plan as sketched is only partial, i. e., it applies only to the three or four main products selected for co-operative action. At the start this limitation should make it much easier to obtain the necessary assurances of co-operation, since the individual plant may retain for its own use any specialty it has developed in processes or markets. It may come about that the success in limited co-operation will be so great that complete co-operation may follow; that, however, is for the future to reveal.

The fact that chemical research has not been mentioned in this discussion does not mean that it has no application to the problem, but only that its application is not as yet immediate and direct. After the industry has succeeded in the fairly simple co-operative market study and market development described above, it will be time to consider co-operative chemical research more intensively.



POLAND'S CHEMICAL REVIVAL

By EDMOND TREPKA

Director, Union of the Polish Chemical Industry

CRIPPLED for many years before the war through political and industrial domination, its chemical equipment almost wholly destroyed through the conflict, the rapid growth of the chemical industry in Poland since the country won its independence is one of the most significant triumphs of Europe's industrial reconstruction and revival.

NATURAL vitality has helped the Polish chemical industry to survive economic staganation and financial reform. Since its restoration, that is, since 1918, Poland has lacked capital. Few countries in a similar situation would undertake new ventures or expansion, but Poland, taking advantage of an abundance of labor and raw materials, has developed an extensive and valuable chemical industry in several different branches.

Chemicals were first made in Poland in 1822 at Warşaw. The first product was sulfuric acid. Since then, although fighting great odds at times the industry has continued to grow. Growth was very unevenly distributed due to the fact that the Austrian and Prussian governments crushed all efforts toward development. Fortunately, such restriction was possible only in those parts of Poland placed under their control. The section under the Russian government escaped this tyranny and there the chemical industry prospered. However, complete development from raw material to finished product was not permitted. In upper Silesia there were factories for extracting the elements from the raw materials, but these had to be shipped to the most distant parts of the empire to be refined.

Then came the World War when our industry was so completely destroyed that in parts of Poland it has been necessary to rebuild from the beginning. So swift and so earnest has this reconstruction been that to-day, nine years after the return of Poland to independency, such noteworthy progress has been made that now Poland is the fourth largest coal producer in Europe, the largest European zinc ore producer, and the third largest continental producer of potassium salts.

Poland, an essentially agricultural country, utilizes large quantities of artificial fertilizers, the bulk of which are superphosphates. Production hardly reaches a total of 200,000 to 250,000 ton per year, in spite of the fact that the plants could furnish a yield of more than 550,000 tons annually. Before the war 450,000 tons were consumed per year. Germany and Czecko-Slovakia use more

fertilizer per acre than we, and our production of superphosphate should grow rapidly, when the prices of agricultural products, compared to superphosphate prices, justify the use of larger quantities of chemical fertilizers. The existence of phosphate deposits, though less rich than those of Algiers and Florida, contribute to the prosperity of the superphosphate industry in Poland. This industry has a common sales office and a similar organization for the purchasing of raw materials. This is a highly satisfactory arrangement as it permits the pursuance of a rational policy in regard to both production and sales.

Polish farmers also use cyanamide. In the spring of 1927 all the production was sold and the demand grew. This accounts for the necessity of at least one more plant for the production of nitrogen compounds. The construction of such a plant was begun this year. It will make synthetic ammonia from nitrogen and hydrogen and then convert it into nitric acid.

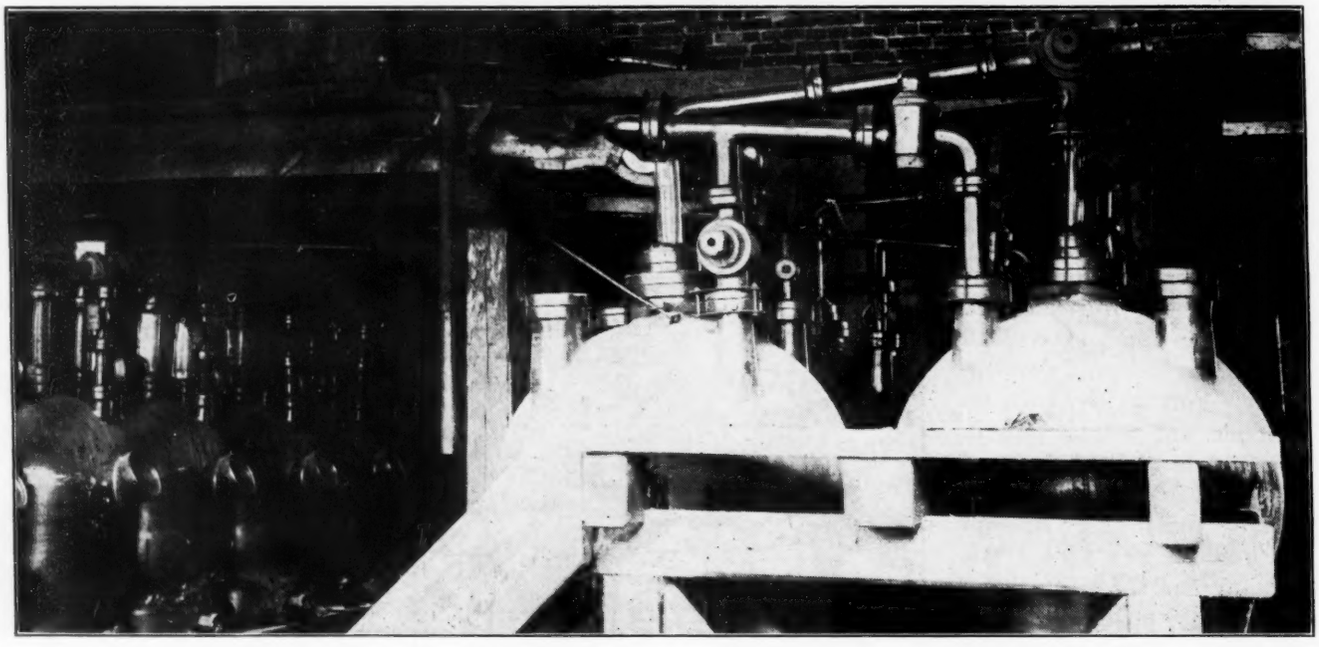
The nitrogen industry in Poland is constantly developing. In 1926 the production of calcium cyanamide amounted to 120,000 tons with an expenditure of about 6 KWH of electrical energy for one pound of nitrogen. If we compare these figures with with those of 1923 when the production was 40,000 tons and the expenditure of energy about 8 KWH per pound of nitrogen we can see that real progress has been made in this field. The state plant producing nitrogen compounds at Charzow transforms the cyanamide into ammonia which it markets in the form of liquid ammonia or ammonium nitrate. It also makes nitric acid 40°Be.

Poland is very rich in rock salt deposits found chiefly in Carpathia and Western Poland. In the latter section the deposits are most abundant, while the richest deposits containing over 99% NaCl were found at the end of 1926. Great difficulties arise in mining these deposits due to the fact that the deposits are covered with water. However, engineers have found means of surmounting these difficulties. By freezing it has been possible to dig a pit to the salt beds. So Poland has been able to furnish one of the most necessary raw materials for the chemical industry. From it are obtained soda, caustic soda, Glaubers salt, chloride of lime, sodium sulfate, etc.

The Polish production of soda amounts to 120,000 tons per year of which a portion is exported. This industry has excellent prospects for development. With the exception of soda which is produced by the well known Solvay concern other branches of production based in this mineral have not as yet been developed to any considerable extent. Only slightly

Chemicals and Raw Materials Produced in Poland

	Tons
Coal	44,080,000
Zinc ore	440,800
Iron ore	440,800
Petroleum	881,600
Potassium salts Jan-June 1927	151,864
Rock salt–1926	504,463
Soda	132,240
Superphosphates	275,500
Calcium cyanamide–'26	132
Ammonium nitrate–'27	13,224
Nitric acid–1927	12,122
Ferrocyanides	2,325
Sulfuric acid, 50°Be	220
Dyes–1926	102
Benzene	16,530

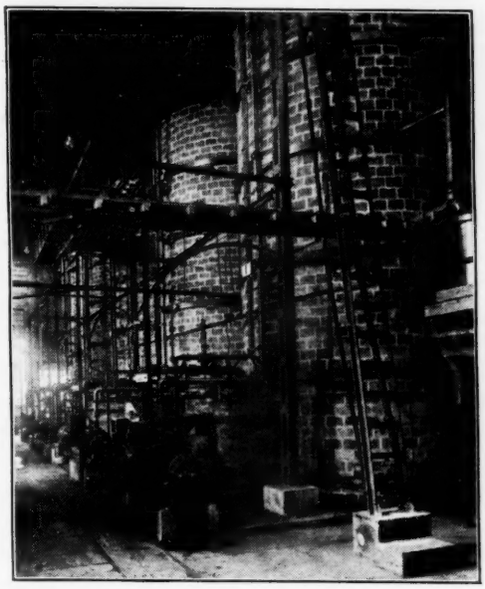


Nitric acid plant at Zgierz. This plant was totally confiscated by the Germans during the war. The Polish Government aided in restoring it for the production of dyes and acids.

Retorts at the Hajnawki Chemical Works, for the crude distillation of hard woods. The products are sent to other plants for refining into acetic acid, acetone, etc.

more than enough for local consumption is produced and a country like Poland, rich in mines and salt fields, should export its products in large quantities. That this is not done is not to be wondered at if we stop to consider conditions before the war. In Russian Poland, exploitation of basic raw materials, as salt, was prevented. In Austrian Poland the government neglected the deposits and deprived them of their natural sales markets. Salt was imported for domestic and industrial purposes, and the rates were so arranged that the cost of the raw materials was greater than the value of any products obtained from them.

The production of potassium salts also has a bright future. The main mines, which are state owned and leased by the Potassium Salts Exploitation Co., are at Kalusz and Stebnik. The former produces silvinite, containing up to 35,% K_2O, and kainite, containing up to 12% K_2O; the latter only kainite, containing up to 18% K_2O. Before the war the amount of this product required for fertilizer was 150,000 tons per year, while actually the two mines mentioned above produced only 35,000 tons. In spite of serious competition from the German industry, the production of potassium salts in Poland continues to grow and in 1926 it was sufficient to allow exportation. From the point of view of access to certain countries in Central and South Eastern Europe, the Polish mines are better situated than those of Stasfurt and Alsace and this should prove a favorable trade factor. It is to be hoped that use will soon be found for the magnesium compounds which accompany potassium deposits at Kalusz.



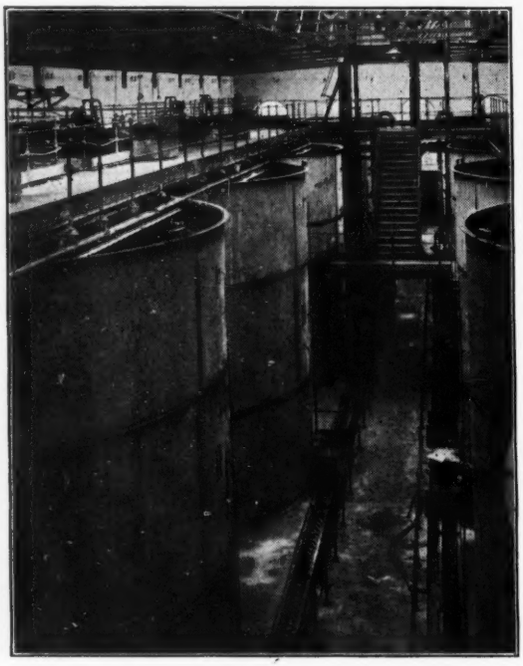
Absorptions towers at the "Azot" Electro-Chemical Works, large producers of nitrogen compounds and alkalies.

Production of ferrocyanide salts is based on electrothermic processes which are entirely original ideas of Polish chemists. Enough is made to supply local needs and to export about 75% of their output. The total output may be placed at 1,500 tons per year. In 1926 it rose by about 30%.

The electro-chemical industry produces iron silicates containing 25, 45, 75, and 90% silicon. The production covers the entire needs of Poland.

On a par with the superphosphate industry is the production of sulfuric acid. This is partially obtained by burning zinc blend and oxidizing the sulfur dioxide thus obtained by the lead chamber or catalytic process; and partially by conversion of foreign pyrites mixed with marcassite mined in Poland. The high import duty on sulfuric acid made it possible in Russian Poland to develop the pyrites process. This industry was almost totally destroyed by the

war. Of nine plants, five ceased to exist and the remaining four succeeded in saving only a portion of their installations. The total post war productive capacity was reduced to ten per cent. of the pre-war figure. The silver and lead foundries in upper Silesia obtain sulfuric as a by-product in roasting galena. The sulfuric acid produced exceeds the local consumption and all excess is exported. In 1925 we exported 50,000 tons, in 1926 25,000 tons. This decrease is explained by the growth of local demand.



Evaporators at Wieliczka, Government salt mines. This plant, producing yearly 250,000 tons, is equipped with the latest vacuum apparatus for producing high-grade salt.

The superphosphate industry consumes a large quantity of acid and as the former grows the consumption of sulfuric necessarily increases.

The gas industry suffered most of all chemical activities from the war. The ruined towns could not maintain public utilities at their normal level, and other urgent demands for capital did not permit new investments of the type practiced in other European countries. Periodic coal stoppages and shortage of supplies also had their effect on this industry. But Polish engineers endeavored to adapt the industry to all possible emergencies. Numerous gas works were fitted with benzol distillaries, coal-tar distilling plants, plants for the generation of hydrogen for use in synthetic ammonia, etc.

The dye industry of Poland is largely based on domestic coal-tar intermediates. It is a distinct hindrance that all the intermediates necessary for this industry are not found locally. However, we do manufacture a number of important nitrated products and aminosulfonic acids in Poland. German competition threatens the young industry because of low price and subsidy. It is well known that German concerns fix low prices for dyes produced in Poland and high prices for those which have to be imported. In spite of this, the Polish production supplies about 60% of the local needs and continues to grow not only in quantity but also in quality and in the creation of new types, thanks to a rational organization and a judicious price. It may be of interest to mention the exportation of our dyes to Russia where they were well known before the war. The regulation of commercial relations with that country is not entirely satisfactory and the exchange of merchandise encounters great difficulties. However, due to pre war relations we have been able to sell our dyes there advantageously. The dye industry amounts to 1,500,000 Kg valued at 9,000,000 gold francs.

Both nitrate and chlorate explosives are produced in Poland. The majority of factories for explosives manufactured are found around Dabrowa, and Upper Silesia since this section of the country uses explosives extensively in the mines.

In the field of pharmaceutical chemistry aside from the production of galenicals and other pharmaceutical specifics, time is largely devoted to synthetic work. Poland makes its own salicylic acid, acetyl salicylic acid and salts, compounds of the arseno-benzene type like salvarsan, silver compounds of the colargol and protagol type, bismuth compounds including the double salts of quinine and bismuth iodine, and gold sulfides used in tuberculoses. Before the war this branch of the industry had an extensive market in Russia which it supplied with galenicals and other specifics. At the present day the Polish chemico-pharmaceutical industry is making rapid strides in reconquering the Russian market.

One of the principal branches of the chemical industry is the manufacture of artificial silk. At the present time there are two plants in Poland which obtain artificial silk by the collodium and viscose processes. The actual production, including artificial silk, straw, and horse hair is 120,000 Kg per month. A new plant is being built which will produce artificial fibers by the viscose process and market the product under the name of "Snia-fils." It is planned to make enough for local requirements and to develop an export trade. In this connection it should be noted that Poland has a monopoly on the production of very fine yarns and for this reason is in a position to export to the entire world.

Since Poland consumes a large quantity of aluminum, both the metal and salts, we may predict a brilliant future for this industry, and we believe that the local deposits will partially replace kaolin and bauxite.

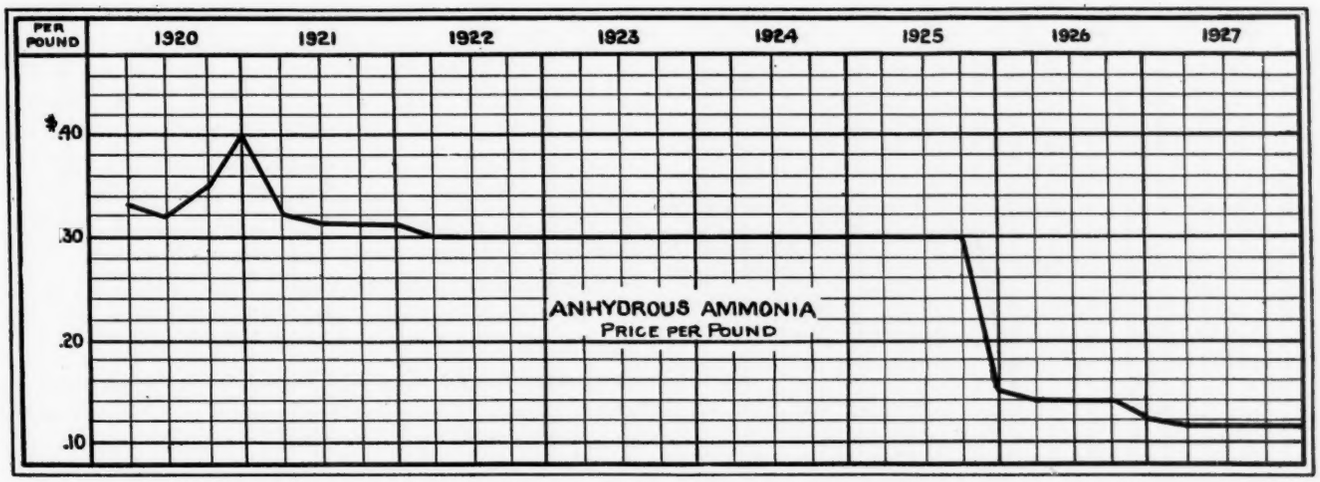
An abundance of cereals, potatoes, and beets will aid the development of the allied industries in Poland, especially alcohol, starch, glucose, malt distillaries, etc.

Poland also possesses great riches in its forests. These cover about 24% of the land. Both hard and soft wood is used for distillation. At Hajnowka is

(*Continued on page 112*)

AMMONIA PROSPECTS

A Market Analysis and Forecast



WITHIN the past two years every aspect of the ammonia market has been completely changed—not once, but several times; and with the remarkable expansion of its use in refrigeration fields and the growing consumption of the sulfate as a fertilizer this product assumes a leading position. Naturally the interest of buyers is stimulated by the kaleidoscopic changes in the production situation. Their caution is being continually roused by all sorts of rumors. There is much speculation as to what the future of course of ammonia prices will be.

In September, 1925 the price of ammonia was suddenly cut from thirty cents a pound to fifteen cents—the first stragetic move in the battle for big contract business which was precipitated by the entry of synthetic ammonia in serious quantities into the field and the switching of one of the country's largest buyers to a new source of supply. Within a few weeks the price was further cut to nine cents.

Consumers, big and little, welcomed this violent break in what had for years been one of the most closely controlled chemicals. Their savings totalled into the millions of dollars. But their joy was tempered.

Buying ammonia had, up to this time been a purely prefunctory act and all rested secure in the knowledge that none of their competitions was obtaining supplies at a lower cost. With the market in a turmoil their former tranquility was shattered. Buying ammonia became a fine art of chemical purchasing. Caution and shrewdness were richly rewarded in a market when all quoted prices were under heavy competitive fire.

Since those feverish days, two contract seasons ago, ammonia has resumed some measure of its former stability. Naturally the producers find these conditions more satisfactory; but there is many a buyer who echoes their sentiments. At a stable and reasonable price, neither selling nor buying is so difficult, nerve-wrecking work.

The market of 1927 was remarkably free from nervousness. Except for the flurry caused by the report that Commercial Solvents were to come into the field, there were few disturbing rumors, for it was obvious that the new plant of the Allied interests at Hopewell could not possibly become a producing factor to disturb 1927 prices. As time goes on and work on the huge Virginia development is being pushed, it becomes more and more evident—so the trade holds—that this new ammonis production will, in the main at least, be diverted to fertilizer fields.

The withdrawal of the Ammonia Corporation from the market cut the country's output about one-eighth, and brought it to a closer balance with the fast-growing consumption. Of the remaining chief producers, Barrett, Mathieson, National Ammonia, Roessler & Hasslacher, and American Cyanamide, two of the largest have not been maintaining their proposed production schedules, and most of the Cyanamide output has gone into fertilizers and other salts. As a result the anhydrous production of 1925—the latest official figures available—which totalled nearly thirty-two million pounds, has been reduced, if anything, while consumption has increased. A contributing factor has been the slackness of the steel industry, resulting inevitably in a decline in by-product coke oven ammonia output.

The result of this complicated combination of production factors has been to give the ammonia

market a strong undertone during the recent fall contract season. Accordingly, the advance of the basic price to thirteen and a half cents has been well sustained. There are even those, close to the market, who are forecasting prices which will make happy those consumers who are covered for their 1928 requirements at the present contract figures.

Ammonia manufacturing costs are almost common knowledge and the claim of the producers that they are not making an adequate profit at current prices is reasonable, if the heavy costs of selling and the tremendous investments called for in transportation are reckoned with. Besides the heavy investment in cylinders, the cost of their up-keep is large, and there are big charges against bookkeeping and accounting in handling these returnable containers. Small wonder then, that the producers are very firm in their ideas about present prices, and that the natural result of supply and demand will be to raise the price of ammonia till all these charges are properly met and a reasonable manufacturing profit allowed.

Increased steel activity promises to increase the by-product ammonia output during 1928. There are, however, two factors to be accounted for before this might reasonably be expected to have any direct effect on the market. The first is that, as the use of sulfate by American farmers grows, there is a natural tendency on the part of both coke ovens and gas works to covert their ammonia liquors into fertilizer channels. The second lies in the steadily growing demand for anhydrous ammonia throughout the country. It is estimated that these elements will more than offset any increased output from coking operations. The one uncertainty lies in the proposed production at the rapidly building plant of the Allied at Hopewell. The company has made no announcements. Speculations are rife; but the purpose of the plant is, as yet, not clearly defined. It is reasonable to suppose that a portion of the output will be absorbed in the manufacture of nitric acid, at least sufficient to supply the needs of the associated group of plants. Trade gossip has it that the products of the new plant, which is being built by the General Chemical organization, will none the less be marketed by the Solvay sales force. This would seem to indicate that the principal products would not be ammonia, else the Barrett staff would be logical distributors. On the other hand, it is pointed out, that if fertilizer materials are to be the main production either the General salesmen now selling insecticides or the Barrett forces marketing sulfate of ammonia would more naturally be employed. Out of such flimsy material any quantity of likely rumors can be constructed.

Hilex Co., St. Paul, Minn., capital $50,000, acquires plant of Home Chemical Co., and will remodel for production of chemicals and bleaching powder.

Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich., to expand by the erection of new plant units to cost $1,000,000.

Who's Who In Chemical Industry

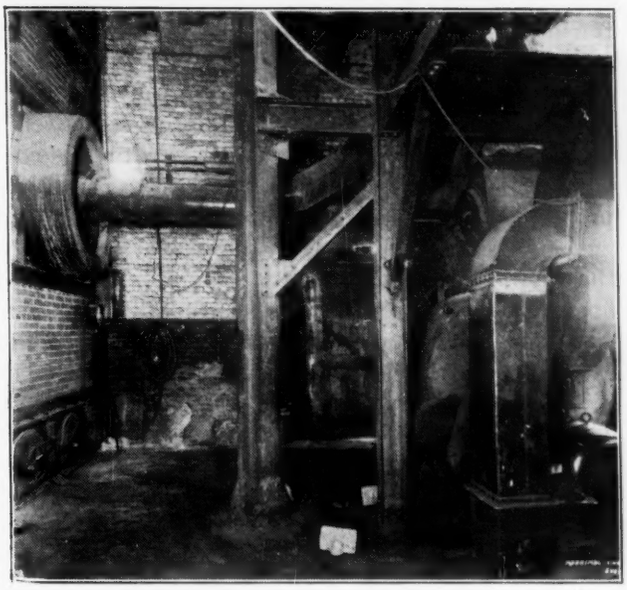
CARL R. DE LONG, Federal Phosphorus Co., Birmingham, Ala. Born: Cuyahoga Falls, Ohio, Oct. 15, 1892. Educat.: Ohio State Univ. 1914, B.S. in Chem. Eng. Mar.: Alice Ward, Sandusky, Ohio, April 29, 1916. Children: one son. Bus.: asst. chemist, Ohio Geological Survey, 1914-16; asst. to supt. Chlorine Dept., Federal Dyestuffs & Chem. Corp., Kingsport, Tenn., 1916-17; research chemist, Electron Chem. Co., Portland, Me. 1917-18; special expert, U. S. Tariff Com., 1918-26; chief, Chem. Div. of Tariff Com. 1920-26. Served as chemical expert to Ways & Means Com. and Senate Finance Com. during framing of Tariff Act of 1922. Mem.: Amer. Chem. Soc., Cosmos Club. Hobbies: golf, horticulture.

ABBOTT K. HAMILTON, gen. sales mgr., Alcohol Div., Pennsylvania Sugar Co., New York. Born: New York, Jan. 28, 1900. Educat.: Princeton, 1922. Public Record: U. S. A., 1918. Clubs: Cannon (Princeton, N. J.); Princeton (N. Y. and Phila.); Seabright Lawn Tennis & Cricket; Drug & Chemical. Hobbies: trout fishing, tennis.

EDWARD J. SMALL, JR., v.p. and sales mgr., Rubber Service Laboratories Co., Akron, Ohio. Born: Braddock, Pa., Dec. 22, 1888. Educat.: Washington & Jefferson Coll., A.B., 1910. Mar.: Helen Marie Klaus, Pittsburgh, Feb. 8, 1913. Children: one daug. Bus: salesman, Firestone, Miller and other rubber companies, 5 years; asst. sales mgr. Marathon Rubber Co., 2 years; Akron branch mgr. National Aniline & Chem. Co., 4 years; Rubber Service Laboratories Co., 1921 to date. Mem.: Rotary, Akron City Club, Portage Country Club, Shriners, Knight Templar, Masons. Hobbies: boating, swimming, baseball.

ERNEST T. TRIGG, pres. & gen. mgr., John Lucas & Co., Inc. Phila. Born: Aurora, Ill., Aug. 12, 1877. Educat.: Public Schools. Bus.: gen. sales mgr., Heath & Milligan Mfg. Co., Chicago; gen. mgr. John Lucas & Co. Inc., 1908 to date. Public Record: regional advisor, War Industries Board, resources and conversion section, region No. 4; mem. Pres. Wilson's Industrial Conference, representing employers, 1919; mem. Pres. Harding's unemployment conference, 1921; Mem.: Paint Mfrs. Assn. of U. S., (pres. 1911); Natl. Paint, Oil & Varnish Assn. (dir. 1922;) Mfrs. Club, Phila., 1923; Chairman, Executive Committee, "Save the Surface and You Save All" since 1916; dir., S. E. Penna. Chapter, Amer. Red Cross, since 1918; dir. Chamber Com. of U. S. since 1918; dir., Union Natl. Bank, Phila., since 1920; dir., Port of Phila. Ocean Traffic Bureau, since 1924; pres. Agricultural Insecticide & Fungicide Mfrs. Assn. since 1924; dir., Penna. State Chamber of Commerce since 1918; dir. Bankers Trust Co., since 1926.

Increasing Boiler-room Efficiency 15 Per Cent.



By E. C. CHAMBERLAIN

Costs and Operating Results Obtained with Powdered Coal as Fuel at the Everett Plant of the Merrimac Chemical Co.

ACTUAL operating figures show that eighty per cent. efficiency is being obtained from the recently completed re-equipment of the boiler house of the Merrimac Chemical Company's Everett (Mass.) plant, using powdered coal, as against sixty-eight per cent. from the old methods of firing.

Furthermore, the simplicity of the operation of the new unit and its automatic features will effect a material saving in boiler room labor and at the same time give a more flexible yet more exact control of temperatures and steam pressures.

Experimenting with Different Coals

Various kinds of coal have been tested, such as New River mine run, New River nut and slack, Pocahontas mine run, Pennsylvania high volatile mine run; and the plant is now being operated on straight Pocahontas slack which is the cheapest fuel available at this point. The management does not care to express an opinion at this time upon which type of coal it considers most desirable. The higher grade coal used, the better the results obtained; but no difficulty is experienced in maintaining all the steam desired with the low cost Pocahontas slack now being burned.

Several factors are to be considered before a particular coal can be decided upon. Run of mine coal has to be crushed before it is delivered to the overhead bunker for pulverizing, whereas no crushing is required when nut and slack or straight slack is used. On the other hand slack coal stored in the open is inclined to absorb considerable moisture and too much moisture interferes with the efficiency of operation of the pulverizer. No special equipment is employed at this installation for drying the coal. It is, however, somewhat dried in the overhead bunker and it is also subject to some drying when it comes into contact with the secondary air. With no more than a normal percentage of moisture this accomplishes sufficient drying. It is proposed to install a mechanical crusher just outside the boiler house, which can be interpreted as meaning that run of mine coal will eventually be purchased.

Details of the Pulverizing Equipment

The powdered coal equipment just installed is the Fuller-Bonnot, No. 3 unit mill. Three of these mills have each a capacity of 3000 pounds of coal per hour and they serve three Babcock & Wilcox boilers, two of 367 horse power and one of 343 horse power, there being a separate mill for each boiler. Boilers are operated twenty-four hours a day and are subject to a range in rating from 100 per cent. During the nights to as high as 225 per cent., at the short peak loads during the maximum steam requirements. The above mentioned eighty per cent. efficiency is based on 150 per cent. rating. As the rating increases there is, of course, a slight decline in efficiency; but since the average rating is around 150 per cent., the full benefits of the installation are realized the greater part of the time.

Operation is Simple

Although to those unfamiliar with powdered coal installations its operation may appear rather complicated, it is really simple and requires a minimum of attention. The unit consists essentially of a feeder, a revolving cylinder in which a charge of grinding balls reduce the coal to the necessary fineness, an interior classifier and exterior separator and an exhauster

fan all of which are so arranged that in operation they function simultaneously.

From an overhead bunker in the boiler room which holds about a full days supply, crushed coal is delivered to the mill by a mechanical feeder. With this coal enters about 40 per cent. of the necessary air for proper combustion of the coal. The pulverized coal and air are then induced by the exhauster through the interior classifier into the separator where the final separation is secured by means of additional air. The pulverized product is then drawn through the exhauster and thence into the combustion chamber of the furnace. Any coal that is not ground to the desired fineness passes gravity into the feeder again and is returned through the pulverizer. This completes the cycle of operation which is continuous and remains constant as long as the feed is not materially changed.

Feeder is Adjustable

The feeder is a slow speed type, operating but two to four revolutions per minute according to the amount desired. The variation of the fuel supply necessary to meet the load demand is easily accomplished by a hand wheel adjustment.

Although the balls used for pulverizing the coal are subject to wear, they can be easily replaced by putting new balls in the coal hopper and allowing them to feed with the coal into the mill. This operation does not require a shut down and it is not necessary to remove the worn balls. They are simply left in until completely worn away thereby rendering 100 per cent. value.

The interior classifier is an important feature to increase efficiency. This is a patented feature, and its function is to collect by suction all the pulverized coal and carry it out of the mill through the discharge conduit to the air separator located directly above the feeder housing. Due to the method of grinding and classification the coal not only passes a satisfactory screen test, but it contains a large percentage of impalpable fines which are necessary to the best combustion efficiency.

Uses Bailey-Tenney Burner

The Bailey-Tenney burner is being used and is working very satisfactorily as it is particularly adapted to furnaces having a restricted volume. It is a horizontal type in which the secondary air for combustion is supplied by natural draft. It consists of a center pipe through which the primary air and coal are forced into the furnace. An adjustable cone is inserted part way into the discharge opening of the center pipe to distribute the primary air and coal and so give the flame in the furnace a spreading action.

The secondary air is drawn from under the boiler and is thus heated to a temperature of 300 degrees F when it reaches the burner. . It enters the furnace around the center pipe, is given a rotating motion by the burner vanes which causes a thorough mixture of the coal and air.

Costs and Yields

Data on output per man per day in copper refining from 1918 to 1927 shows a decrease of men employed from 578 to 233 and an increase of about 10% in output, meaning that the pounds of refined copper per man per day have increased approximately 2½ times. —*Labor Review, Nov. 1927.*

Ferro phosphorous, 25%, can be made as cheaply as 18% is now produced according to a patent recently taken out by the Warner Iron Co., which allows the use of a low grade cheap phosphate rock and a generally cheaper operation due to the large amount of metal recovered and to a small amount of slag.

The Riordon Corporation producing 60 lbs. of caustic soda per week saves $10,000 annually by fusion with electric heat.—*Ind. and Eng. Chem., News Edition, Nov. 10, 1927.*

Carbonization of coal at low temperatures gives smokeless solid fuel as the main product and primary tar as a by-product, the latter being obtained in yields of about 16 gallons per ton of coal carbonized. The hydrogenation of coal by the Bergius process gives an average yield of 140 gallons of liquid products per ton of coal.

Low temperature carbonization is of importance in treating the normally almost valueless small coal from each ton of which can be obtained 14 cwt of smokeless fuel called "Coalite," 20/22 gallons of oil and about 6,000 cubic feet of gas of thermal value of about 700 B. T. U.—*Chem. Age, Nov. 26, 1927.*

Comparison of ammonia oxidation and niter-potting processes as sources of nitrogen oxides for chamber acid plants show the following differences in cost. A plant turning out 75 tons of 50° Be sulfuric acid consumes 192 lbs. on ammonia per day at a cost of $12.96 with a labor, power, and upkeep cost of only $2.50 per day. In the niter-potting process 75 tons of 50° Be acid consumes 956 lbs. of sodium nitrate at a cost of $23.90. The acid required costs $6.44 and the labor $5.00 per day. Thus the saving $19.88 per day by the ammonia oxidation process represents an economy of 26.5 cents per ton of acid or about 3% of its cost.—*Ind. and Eng. Chem., Oct. 1927.*

Ammonium phosphate may be produced at $34.50 a ton by a new process of the Alabama Power Co. The sulfuric acid process costs $53.00 and the electrothermal $51.11. The new process uses ammonium bisulfate as a cyclic carrier for the phosphate content of the phosphate rock.

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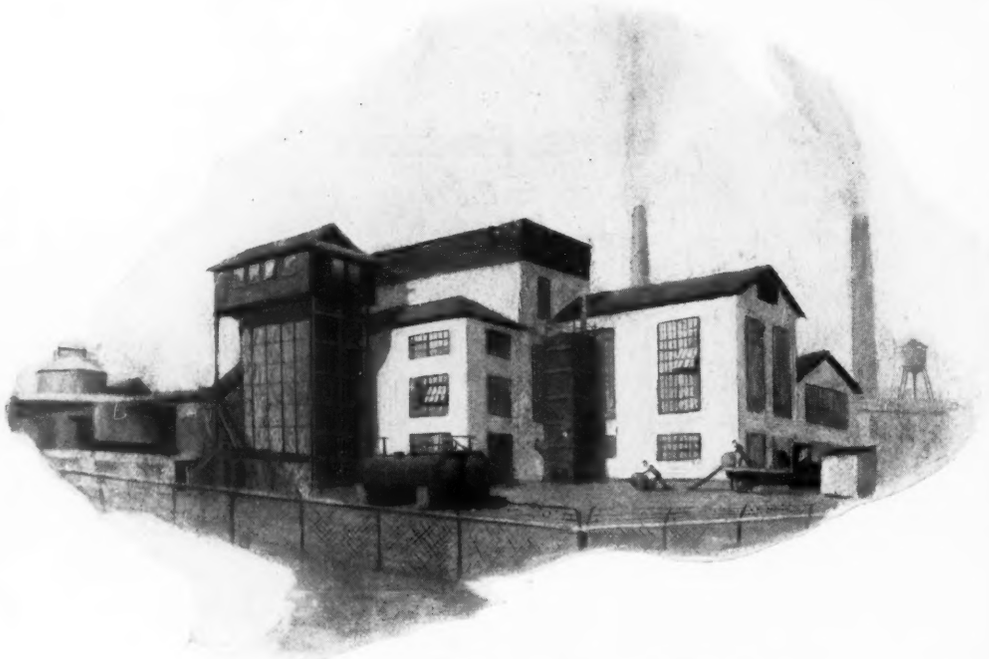

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Chemical Facts and Figures

New Cartel Organized In Belgian Chemical Industry

Union Chimique Belge Organized By Four Belgium Companies—Step Is not Considered Preliminary To Entrance Into European Chemical Entente—Points To More Intensive Integration Within Belgium.

Union Chimique Belge is the most recent of the European chemical combinations. It consists of Societe Generale Belge de Produits Chimiques, 60,000 shares, capitalized at 30,000,000 francs; Societe Anonyme de Produits Chimiques de Droogenbosch, 50,000 shares, capitalized at 25,000,000; Societe de Produits Chimiques et Pharmaceutiques Meurice 14,000 shares, capitalized at 7,000,000 francs; and Societe Anonyme des Fours a coke Semet-Solvay & Piette, 120,000 shares, capitalized at 60,000,000 francs. According to Trade Commissioner George W. Berkalew, Brussels, who reported this new cartel to the Department of Commerce, there is no information to indicate that this formation within the Belgium chemical industry is preliminary to the addition of that country to the European chemical entente. The fact that the Belgium industry specializes in the production of fertilizers, explosives and distilled coal products, and plays but an insignificant part in dye production, limits the advantages to be derived from its joining such an international organization.

The societies under consideration are being liquidated, converting their entire capital into securities of the Union Chimique Belge, according to the following financial program: Semet-Solvay & Piette, 150,000 shares of the Union Chimique Belge, for 75,000,000 francs. Societe Generale de Produits Chimiques, 60,000 shares of the Union Chimique Belge, for 30,000,000 francs. Droogenbosch, 66,000 shares of the Union Chimique Belge, for 33,000,000 francs. Meurice, 14,000 shares of the Union Chimique Belge, for 7,000,000 francs.

This total of 290,000 shares of no-par value stock will be carried on the balance sheet of the Union Chimique Belge at the value of 145,000,000 francs. The 30,000,000-franc surplus capital will be obtained by floating an issue of 100-franc par-value stock, bearing a fixed rate of interest. The subscription to this issue will be reserved exclusively to investment bankers under whose auspices the fusion was realized—the Mutuelle Solvay, the Societe Generale de Belgique, the Banque de Bruxelles, and the Banque Industrielle Belge. Each of these banks will be represented on the board of directors of the Union Chimique Belge. The office of president of the administrative council will be filled by Mr. George Theunis, late prime minister; Mr. Emmanuel Jannsen, at present "administrateur delegue" of the Mutuelle Solvay, will act as president of the administrative committee of the new project; while Mr. Gaston Blaise, director of the Societe Generale de Belgique, and Mr. Olivier Piette will fulfill the functions of administrateur delegates.

Advantages to be derived by this amalgamation in the matter of overhead and administrative costs are evident. In addition, the production of sulfuric acid and its by-products can be controlled almost entirely under conditions imposed by the new cartel, especially since recent expansion in the Compine coal fields will soon permit domestic production of coal gas formerly derived from foreign sources.

Although the Union Chimique Belge bears no resemblance to the close combinations now existing within the German industry, it seems evident that the step is preliminary to more intensive integration within the country. The firm of Evans Coppee, which holds a prominent position in the Belgium chemical industry is not included in the new cartel, but will be represented on the board of directors, while neither the Union Miniere group or the Societe Generale de Minerais, both of which act in close co-operation with the Societe Generale Belge de Produits Chimiques, have as yet been admitted into the new cartel.

ANOTHER HOOVER CONFERENCE FEB. 16

Chemical Trade Advisory Council recommends a second conference of executives of the chemical industry with Secretary Hoover in Washington at the Department of Commerce, Feb. 16. The first was held last year and at that time, the executives were made acquainted with the work of the department and how it was equipped to assist them. The discussion this year will undoubtedly center about the cartel. The department will have some of its foreign Trade Commissioners come to the meeting from their stations abroad to address the conference upon the subject of cartels and acquaint them with the most recent developments. About 500 executives of the industry have been invited to attend this meeting, which will be held in the auditorium of the United States Chamber of Commerce.

The personnel of the Chemical Trade Advisory Council has been increased by the addition of Frank A. Blair, Centaur Co., Gilbert Colgate, Colgate & Co.; Lammot du Pont, E. I. du Pont de Nemours & Co.; Chas. L. Huisking, Chas. L. Huisking Inc.; H. C. Parmelee, McGraw-Hill Publishing Co.; Frederick Rosengarten, Merck & Co.; J. T. Skelly, Hercules Powder Co.; Walter Teagle, Standard Oil Co.

In addition, the committee as constituted three years ago is composed of the following: A. Cressy Morrison, chairman, Union Carbide & Carbon Corp.; H. E. Howe, secretary, Industrial & Engineering Chemistry; Leo H. Baekeland, Bakelite Corp.; Dr. A. S. Burdick, Abbot Labs.; Henry Howard, Grasselli Chemical Co.; Gustavus Ober, G. Ober & Sons Co.; E. T. Trigg, John Lucas & Co.; S. W. Wilder, Merrimac Chemical Co.

WARNING TO BOOTLEG CHEMISTS

Bureau of Prohibition is making special drive against chemists in connection with analyzing bootleg liquors. Bureau holds, according to Dr. Doran, that a chemist has a right to analyze samples of any lawfully possessed liquor, whether or not prescribed by a physician, but has no legal right to work with liquor unlawfully possessed by his client and when making such tests is guilty of unlawful possession himself.

Merck & Co., Rahway, N. J., elect officers for 1928 as follows: Frederic Rosengarten, chairman; George W. Merck, president; George W. Perkins, treasurer; Henry Stein, assistant treasurer; R. E. Gruber, J. J. Kerrigan, J. G. Rosengarten, Jr., J. Rosin, vice-presidents; B. L. Murray, chief chemist; H. R. Neilson, secretary; P. McK. Garrison, S. W. Walker, assistant secretaries; J. A. Garvin, assistant to president.

Air Reduction Co. and U. S. Industrial Alcohol Co. do not plan a merger says C. E. Adams, president of the first and chairman of the latter corporation.

Atmospheric Nitrogen Co.'s first unit of new construction at Hopewell, Va., reported completed. Night and day shifts now working to speed final completion of this plant.

Olean Sales Corp., Olean, N. Y., establishes a branch at Lowell, Mass., to distribute acetic acid.

Personal and Personnel

Charles B. Manville, asbestos pioneer, dies at the age of 92.

Dr. William H. Nichols, chairman, Allied Chemical and Dye Corp., presents New York University with a new chemistry building, named for him and made possible by his gift of $600,000.

Thomas S. Lamont, son of Thomas W. Lamont, elected director of Texas Gulf Sulphur Co.

J. N. Taylor is new head of Drugs and Fine Chemicals Division Department of Commerce.

Moses Gomberg, University of Michigan professor, is this year's recipient of the Chandler medal. Dr. Irving Langmuir, General Electric Co., received the Perkin medal award.

Allen B. Wrisley, pioneer Chicago soap manufacturer, dies December 19.

Herbert G. French, vice-president, Proctor & Gamble Co. heads committee to raise $2,500,000 for Cincinnati Institute of Fine Arts.

William G. Mather president, Cleveland Cliffs Iron Co., Cleveland is one of a committee of three representing the Trumbull Steel stockholders in the Republic-Trumbull steel merger.

George Eastman, chairman, Eastman Kodak Co. (photographic and rare organic chemicals) awarded the Order of Polonia Restituta for his services in post-war relief to the Polish people.

Williams Haynes is chairman of Symposium on Economic Chemistry at the 1928 Fall meeting of Industrial Section, American Chemical Society, Swampscott, Mass.

T. B. Wagner, consulting chemical engineer, removes his office from 217 Broadway, New York to 52 Vanderbilt Ave.

E. A. Cappelen Smith, president, Anglo-Chile Consolidated Nitrate Corporation, sails for Chile to supervise completion of 500,000 ton capacity plant. The companys' present plant is of 300,000 ton capacity.

James McInnes, Jr., secretary of Seaboard Chemical Co., succeeds Edward S. Wright as sales manager.

Ditzler Color Co., Detroit, appoints Neil A. Fleming, sales manager, manufacturer division; Ernest Hummitch, sales manager, distributor and export division; Fred J. Schneider, assistant sales manager, manufacturer division.

Irene du Pont gives $45,000 for cancer research at University of Pennsylvania.

Dr. Robert F. Ruttan, director of Department of Chemistry, McGill University, Montreal, and Dean of Faculty of Graduate Studies, retires after 40 years service.

N. Emory Bartlett and Y. F. Hardcastle elected vice-presidents of the Pennsylvania Salt Manufacturing Co. The former continues as general sales agent while the latter is in charge of manufacture of chlorine products at Wyandotte and Menominee, Mich., plants and superintends construction of new plant at Tacoma, Wash.

WENDT DIRECTOR OF NEW INSTITUTE

Announcement Made of Formation of Institute at Columbus, Ohio—Advancement of Industrial Research Object of Foundation—Organization Made Possible By Endowment From Battelle Estate—Wendt Will Resign Penn State Position in Spring.

Announcement is made of the organization of Battelle Memorial Institute, Columbus, Ohio, and the construction of its first buildings. The Institute is endowed with a large sum of money from the estate of Col. John Gordon Battelle, his wife, and his son, Gordon Battelle, has secured a tract of about five acres, opposite the campus of Ohio State University, and the construction of the first two buildings, costing about a half million dollars, will be undertaken in the spring. Dr. Gerald Wendt, Dean of the School of Chemistry and Physics at Pennsylvania State College, has been selected Director, and the organization plans are now under way with the intention of beginning the operations of the Institute by the fall of 1928.

Colonel John Gordon Battelle was a leader of the iron, steel and coal industries and prominent in Columbus throughout his life. He was a close associate of President McKinley and was made Adjutant General of the State of Ohio during McKinley's governorship. Gordon Battelle, whose death in 1924 made the estate available, was also a man of position in the steel and nonferrous metal industries.

While the main object of the Institute will be industrial research under the fellowship system, very much as is now the practice at the Mellon Institute, the large income from the funds of the Institute itself will be devoted to long-distance industrial research for the broad benefit of American industry and for scientific research. This will provides that any profits arising from the operation of the Institute be devoted to charity or to the support of other scientific research.

After an extended inspection trip in which the chief college and industrial research laboratories in the eastern portion of the United States were studied by the trustees and the Director, Otto C. Darst, of Columbus, was architect for the Institute. The first building will stand as a memorial to the Battelle family and will comprise administrative offices, the library, a large auditorium, a museum, machine shop, stock rooms and a number of laboratory suites. The second building, which will be erected at the same time and will adjoin the administration building, will have individual laboratories on the third floor, but the remaining space, including the basement, first and second floors, will be an engineering shop with a clearance of 35 feet and provided with an electric crane and spacious balconies.

Dr. Wendt has resigned from The Pennsylvania State College, effective July 1, 1928, and will supervise the planning and construction of the laboratories and the organization of the staff.

NEW PLASTICIZER ON MARKET

Hercules Powder Co., Wilmington, are marketing ethyl abietate, a new lacquer plasticizing agent. Its features are light color, non volatility, good odor, complete miscibility with ordinary lacquer solvents and not only resinous properties, but a plasticizing action on nitrocellulose.

Roessler & Hasslacher Chemical Co.'s trade paper advertisements, treating with the place of chemicals in daily life of "John Doe," are the subject of an article by Charles G. Muller in "Printers Ink."

Shareholders of Imperial Chemical Industries, Ltd., London, have sanctioned the company's request that it be allowed to increase its preference capital from £16,220,000 to £22,800,000.

Pennsylvania Salt Manufacturing Co., Philadelphia, discontinues chlorine distributing station at Babbitt, N. J.

Germany Perfects Synthetic Rubber Production Process

Report From Berlin Trade Commissioner States That Commercial Production Is To Begin Shortly—I. G. Chemists Credited With Perfection of Process—Von Weinberg Had Previously Predicted That Operation Might Be Expected At Early Date.

German Dye Trust perfects process for producing synthetic rubber and prepares to begin commercial production, according to U. S. Department of Commerce. Chemists of the I. G. are said to have perfected the process, details of which are being kept secret.

Reference has already been made (CHEMICAL MARKETS, Dec. 8, 1927) to speech by Geheimrat von Weinberg, German Dye Trust, which included statement that his organization "will be able to produce easily the raw materials for synthesis of rubber and gutta-percha by a protected high-pressure contact process" and that patents had been applied for.

William T. Daughtery, Trade Commissioner at Berlin, says in his report to Department of Commerce, "Weinberg was engaged in reviewing some of the triumphs of modern chemistry, particularly catalytic processes when he mentioned synthetic rubber. It is highly important to note, however, that he referred to production of raw materials for synthesis of rubber and not actually the finished product."

This is not the first synthetic rubber. Eighteen years ago, Professor Fritz Hoffmann, Breslau, submitted his first developed synthetic rubber to Continental Rubber Co., Hanover. His product was built on previous research by the Englishman Tilden, the German Harries and particularly the Russian Kankadoff. He is still identified with research in this field and at present is said to be engaged in producing synthetic isoprene, or rubber, by departing from para-cresol and passing it through reactions to betamethyl-adipic acid to isoprene.

During the war, German Dye Trust produced synthetic rubber at approximate rate of 2,500 tons annually, one-eighth of Germany's normal consumption. A special plant erect at Leverkusen is supposed to have done this by departing from calcium carbide by producing acetaldehyde by addition of water in presence of a catalyst. The acetaldehyde was converted by oxidation to acetic acid, and the latter, being blown over a catalyst became separated from carbon dioxide producing acetone. The acetone was reduced with aluminum, and the end product to the mother substance of methyl-caoutchouc. The process, however, had to be abandoned after the war as noncommercial.

This has been the chief objection to synthetic rubber as recent developments in the so-called organic accelerators and refiners by Professor Hoffmann and associates, have removed former objections of decomposition in air and non-susceptibility to vulcanization.

"Whether research on synthetic rubber has been able to develop its elasticity in comparison with natural rubber seems doubtful," continues Trade Commissioner Daughtery. On the other hand, there can be no question that the German Dye Trust has succeeded in cheapening costs of the basic hydrocarbons. Weinberg may have in mind the cheaper process of hydrocarbon production from lignite instead of coke.

"Admitting these lower costs, and that the German Dye Trust, operating its complexity of mass-scale synthetic processes producing synthetic ammonia, gasoline and methanol, can have waste by-product for entrance into synthetic rubber, the price factor is determining. Natural rubber producers could lower prices without loss and they are thus, a strong competitor of any synthetic venture."

Developed water power of the world was about 23,000,000 h.p. in 1920, 29,000,000 h.p. at the end of 1923, and 33,000,000 h.p. at the end of 1926, an increase of 43 per cent. in 6 years, according. to U. S. Department of the Interior.

News of the Companies

Chas. L. Read & Co., 90 West St., New York has been organized to handle a general line of chemicals, specializing in charcoal, wood chemicals and alcohols. The telephone number is Rector 8440.

Charles L. Read, the owner, was formerly with Seaboard Chemical Co., New York, as sales manager and more recently with Miner-Edgar Co., New York. James F. McCartney, also formerly with Seaboard, is associated with Mr. Read.

Shawinigan Water and Power Co., Montreal, combines its subsidiaries, Canada Carbide Co., Ltd., and Canadian Electro Products Co., Ltd. into Shawinigan Chemicals, Ltd.; management and operation will be as heretofore.

A. E. Staley Manufacturing Co., Decatur, Ill., leases buildings in Brooklyn Eastern District Terminal, Brooklyn, for manufacturing and storage at a reported rental of $175,000 for the period of the lease.

United Turkey Red Co., England, reported to absorb British Alizarine Co., Manchester, according to word received from London last week. United Turkey Red Co., refuses to deny or affirm report.

Dickinson, Brown & Co., 30 Church St., New York, organizes as brokers and manufacturers' representatives to the chemical industry. Telephone Cortlandt 7860. Charles H. Dickinson was formerly a member of firm of Dickinson, Renouf & Co.

Davison Chemical Co.'s $1,000,000 building program near completion. All the new units to be in operation by April. Bookings for acids and fertilizers for this year indicate that it will be the best the company has had since 1920.

Phillips and Rowe, Inc., is the name of a firm just organized by E. C. Phillips and P. M. Rowe to deal in shellac, turpentine, rosin and linseed oil. The office is located at Produce Exchange Building, New York.

Paraffine Companies, Inc., San Francisco, holds its forty-fourth annual sales convention at Hotel Leamington, Oakland, Cal. with more than 150 executives and sales representatives in attendance.

Clarence Morgan & Co., Chicago, are now representing General Industries Alcohol Co., New Orleans, in Illinois, Iowa, and Indiana, carrying stocks of completely denatured grades in Chicago.

Hockessin Supply Co., Wilmington, chartered in Delaware with authorized capital stock of $50,000, to manufacture and deal in chemicals.

Seydel-Woolley Co., Atlanta textile chemicals manufacturer, completes new plant located on Louisville & Nashville line, near Bankhead Highway.

Du Pont Rayon Co. moves into new New York offices in Park Avenue Building, 1 Park av.

Franklin Rayon Mills, Inc., organize Tennessee corporation at Franklin, Tenn., with capital stock of $65,000. Incorporators: Harry Altman, Samuel Denmark, Philip Sears, W. A. Roberts and C. H. Corn.

Republic Creosoting Co., Indianapolis, to construct new plant to cost $50,000.

SALESMEN CLOSE CONTRACT SEASON

At 7.14 p. m., Dec. 28, the distinguished Committee of Vice Presidents drove the last of their celebrated guests out of Room 121 and began herding the common citizenry towards the banquet hall of the Hotel Brevoort. By 7.26 the last of the white tickets (dues-paid members) and the blue tickets (guests) had been collected by the harassed young gentleman at the door. At 7.37 most everybody had found a seat to his liking at a table to which he had not been assigned, and the waiters, who were not busy filling special orders for Canada Dry, served a hot, thick, cream soup. And the annual Christmas Party of the Salesmen's Association was away to a flying start.

It broke up hours—many hours—later in little pieces after a famously good dinner, some equally bad choral singing lead by a hard-working, sandy-haired cheer-leader from one of the Night Clubs; some middling good topical songs by a hard-boiled male trio (interrupted by calls "We want Tommy!"), and various ladies who entertained with sundry dances, among whom "Tommy" was a twenty-to-one favorite. In fact, "Tommy" and three enormously influential purchasing agents, who had been carelessly invited by some reckless members, were quite the outstanding hits of a most successful evening.

The beginning of an unparalleled war for world wide supremacy in rayon is seen on the London stock exchange, according to despatches from that city. The report that French Rhodiaseta has offered Courtauldts the British rights for the manufacture and sale of cellulose acetate made by their process, caused this expression of opinion.

Texas Gulf Sulphur Co. purchases sulfur and surface rights on 240 acres adjoining tract now being prospected at Boling, Texas. Purchase price was $500,000 and William Banker, former owner retains oil rights to the land and receives a fractional royalty on sulfur produced.

Noninflammable Film Co., London, plans manufacture of films from cellulose acetate at company's Manchester, Eng., factory. In announcing this innovation in film industry, the company refuses to state source of its cellulose acetate supply, says "Daily News Record."

Chemical Club of Philadelphia elects following officers: F. C. Weber, Keasby & Mattison, president; C. F. Wolters, Consumers' Chemical Co., vice-president; W. F. Donohue, du Pont, treasurer; Col. Du Fault, du Pont, assistant treasurer; George F. Applin, Mallinckrodt, secretary.

S. Arakawa, Ataka & Co., Osaka, Japan, is visiting Savannah to study naval stores production and marketing. Ataka & Co. is one of the largest buyers of rosins in Japan, which country last season imported about 85,000 barrels from the United States.

Piedmont section, American Ass'n. of Textile Chemist and Colorists will hold its annual meeting at Greensboro, N. C., Jan. 21, with H. A. Barnes, district chairman, presiding.

Floyd C. Cannon, vice-pres. and sales manager, Clorex Chemical Co., Los Angeles, dies as a result of a heart attack while visiting the company's Oakland, Cal. plant on December 29.

George R. Reed, president, George Russell Reed Co., San Francisco, leaves for an extended tour of Africa accompanied by Mrs. Reed.

Republic Creosoting Co., Indianapolis, files complaint with Interstate Commerce Commission seeking lower freight rates on creosote oil in tankcar loads from Indianapolis to Norfolk, Va.

FEDERAL PHOSPHORUS CO. SELLS ACID PHOSPHONIC PROCESS TO FRENCH FIRM

Federal Phosphorus Co., Birmingham and Anniston, Ala., has sold its electrothermal process for producing phosphoric acid to Societe des Phosphates Tuniesens, Paris, France. Process is based upon electrothermal smelting of phosphate rock which produces directly a concentrated acid, as compared with old process of treating phosphate rock with sulfuric acid, which produces a weak acid requiring subsequent treatment. Present plant of Federal Co. at Anniston is said to be only one in world using this process which was developed by its engineers.

The French Company plans to use the phosphoric acid in the manufacture of ammonium phosphate for fertilizer. The ammonia will come from Casale synthetic plant of Engrais Azote et Composee, controlled by the Tunisiens Company, the phosphate rock from the company's mines in Tunis and electric power from the Union des Producteurs d'Electricite des Pyrenees-Orientales.

DU PONT SILENT ON 1-G REPORT

E. I. Du Pont de Nemours & Co., Wilmington, has declined to make any statement with regard to statements appearing in New York newspapers to the effect that "Du Pont and I. G. Farbenindustrie negotiations have been suspended because the Germans are reluctant about making a large capital investment."

In declining to enlarge on this the Du Pont Co. told a representative of CHEMICAL MARKETS that their refusal to deny or affirm the report should by no means be taken as a confirmation of the rumor. No statement is forthcoming only due to the fact that there has absolutely been no change in the status of relations between Du Pont and any foreign concerns with whom the company is doing business and in view of the untruth of the report no formal statement was deemed advisable

Globe Cotton Oil Mills, Los Angeles; Independent Cotton & Oil Co., Messa; and Mutual Cotton Oil Co. and Western Oil Co., Phoenix, Ariz., file complaint with Interstate Commerce Commission seeking lower freight rates on carload shipments of cottonseed oil from Arizona to Los Angeles, San Francisco and other points in California.

Atlantic Coal Tar Distillates, Bayway, N. J., files formal complaint Dec. 28, alleging sixth-class freight rate charged on crude naphthalene and sludge from Philadelphia, Buffalo, New York, New Haven and other points to Bayway is unreasonable and prejudicial.

Suspension of certain fertilizer schedules which propose to revise the rates on fertilizers and fertilizer materials from Southern seaboard ports to interior Southern points, are effected by a ruling of the Interstate Commerce Commission effective Jan. 1 1928, to Aug. 1, 1928.

Pacific Guano and Fertilizer Co., Honolulu and San Francisco, pays its quarterly dividend of 2%. The company operates three plants at Honolulu, Hilo and San Francisco, with the output of the first plant larger than the entire requirements of the state of California.

Loyd E. Jackson and George H. Johnson, Senior Industrial Fellows, Mellon Institute of Industrial Research, University of Pittsburgh, elected to honorary membership in National Association of Cleaners and Dyers.

Dreyfus-Clavel group has issued a warning letter to organizations producing cellulose acetate yarns, declaring their intention to fight any cases of infringements on patents, according to a London report.

Du Pont Rayon Co., increases capital from $10,000,000 to $25,000,000

The Financial Markets

ACETOL PRODUCTS 60,000 SHARE STOCK ISSUE OVERSUBSCRIBED

Entire Offering Disposed of on Day of Issue—Company Has Enviable Record of Sales—Stock Does not Represent New Financing—Will be Listed on Curb Market—Du Pont Silent on 1-G Rumors—Imperial Chemical Industries Nitrate Plant Expansion.

At $29.50 a share the 60,000 shares of convertible, no par, voting stock of Acetol Products, Inc. was sold on the day of issue. Besides this issue there are authorized 240,000 shares of no par common, of which 180,000 are outstanding, 60,000 being held for conversion of the stock of this issue. The company which manufacturers Cel-o-glass, wire mesh coated with translucent cellulose, admitting almost as much light as window glass and not exclusing the ultraviolet rays, started in 1924 with a production of less than 150,000 square feet and has an enviable record of sales, published at the time of the offering as follows:

Cal. Years	*Net Profits*	*Per Sh. A Stk.*	*Per Sh. Com. Stk.*
1924	(loss) $2,697	nil	nil
1925	21,667	$0.36	nil
1926	207,025	3.45	$0.35
1927 (10 mos.)	459,617	7.66	1.88

The balance sheet as of Oct. 31, 1927 shows net current assets of $427,013 and a ratio between current assets and current liabilities of over 5½ to 1, with cash and marketable securities alone equal to nearly 2½ times all liabilities.

The stock sold does not represent new financing. It is preferred over common as to dividends, accumulative after Dec. 15, 1927, at the annual rate of $2.40 a share, and redeemable on 30 days notice, at $40 a share in event of liquidation it is entitled to $40 a share plus dividends before any distribution to the common stock. The stock will be listed on the N. Y. Curb.

BRITISH NITRATE EXPANSION PLANS

Imperial Chemical Industries, Ltd., is extending the plant of its subsidiary, Synthetic Ammonia and Nitrates, Ltd., by 1930 to produce an additional 100,000 tons of nitrates a year. These plans are especially interesting in view of the fact that the British Sulphate of Ammonia Federation has pointed out that even at ordinary rates of increase of production and consumption, the output of synthetic nitrogen announced for 1928-29 will probably exceed consumption.

TAXES REFUNDED TO CHEMICAL FIRMS

Final federal tax refund list made public contains following: Bulls Ferry Chemical Co., Woodbridge, N. J., $10,252; Corning Glass Works, $38,187; Edgar Bros., Metuchen, $2,203; Kellog & Sons, $36,506; P. A. Schoelkopf, Niagara Falls, $1,011; Swan & Finch, Co., $7,208; Will & Baumer Candle Co., $5,968; Proctor & Gamble, $18,225; Patton Paint Co., $12,570; Roxbury, (Mass.) Chemical Works, $12,239; Stauffer Chemical Co., $31,940; H. J. Schlesinger, Milwaukee, $28,593.

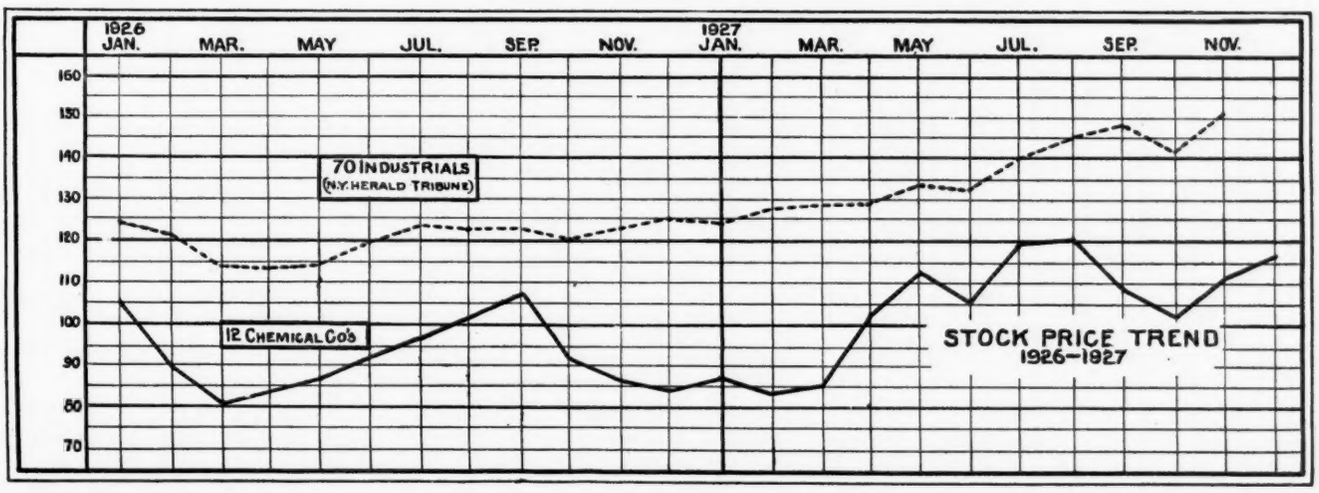
Editorial comment in "The Indicator," house organ of the Middle West Sections of the American Chemical Society, on the advance of Union Carbide stock at the expense of Commercial Solvents declines upon reports of new lacquer solvents perfected in Carbide's research laboratories points the moral that the chemist is becoming a financial power. A more apt conclusion might be that Dame Rumor, "the grand old lady of the street," is learning to perform some simple chemical experiments of her own.

Glidden Co. reports for the year ended Oct. 31, 1927 a consolidated net income of $1,712,438 after interest, depreciation and estimated Federal income taxes, equal after prior preferred dividends to $3.05 a share on the 400,000 shares of no par common shares outstanding. This compares with $1,861,945 or $3.39 a share on the common in the preceding fiscal year.

Alcohol plays a bigger part in the earnings of the Haytian Corporation than chemical people generally suspect. Their sugar department, handling also molasses and alcohol, reported local sales for the five months ending December 1, of $324,621, against $287,412 and $229,397 for the same periods of '26 and '25 respectively.

Eddy Match Co., Ltd., Hull, Ont., organizes to take over E. B. Eddy Match Co., Ltd., Hull; Dominion Match Co., Ltd.; Deseronto, Ont.; Canadian Match Co., Ltd., Pembroke, Ont., and World's Match Co., Ltd., Berthierville, Que.

Establishment Kuhlman increases capital to nominal 300,000,000 francs and Dillon, Read & Co., American bankers, head international banking group to buy the new shares.



Wall Street and Chemicals

All too few friends of Dr. Mueller of Rhodia knew in advance of the offering of Acetol Products stock, or the issue might have been oversold right in chemical circles. It has not been a secret that this flexible glass business has been prospering, and there is plenty of personal confidence in this quiet, hard-working, pains-taking, likable chemist-executive. MacIntosh of Hemphill Noyes, having been formerly with Greeff & Co. must have known this, and no doubt some of his chemical friends were let into the secret of all the luncheons he has been eating this fall at the Drug Club with Dr. Mueller.

The so-called friendly receivership of Miner-Edgar Co. is not working out in the amicable way towards a reorganization as was originally intended. Selfish unpleantries are almost inevitable before there is, in such unfortunate cases, any solution of assets and liabilities.

Celanese Corporation of America report December 30 its ten year 8% sterling bonds (£40,000) all converted and the participating dividend on the 7% cumulative first preferred stock will be determined early in January.

Industrial Rayon Corp., Cleveland, net profit after depreciation and estimated taxes for the eleven months to Dec. 1, 1927 is $801,868.

Celotex Co., earnings for year ended Oct. 31, 1927, will show net profit of more than $700,000, compared with $1,129,546 for year of 1926.

Koppers Co., Pittsburgh, Dec. 8, put through a deal involving some $20,000,000, to purchase from T. E. Houston, Cincinnati, approximately 27,000 acres of coal lands in the Pocahontas field, with estimated coal reserves of over 300, 300,000,000 tons. The properties which they acquire are those of the Houston Collieries Co., the Houston Coal & Coke Co., the Keystone Coal & Coke Co., the Rockcliff Coal & Coke Co., the King Coal Co., the Tidewater Coal & Coke Co. and the T. E. Houston properties. All are active modern properties.

Corn Products Refining Co. holds marketable securities now of approximately $35,000,000 compared with $29,804,613 as of Dec. 31, 1926. Securities are carried at cost but valuation at present market levels is between $38,500,000 and $39,200,000, says "Wall St. Journal." At cost, this is an increase during 1927 of roughly 17.5 per cent.

Reports of quiet buying of fertilizer stocks on the basis of the improved financial condition of farmers are appearing in the financial journals, with American Agricultural Chemical Co. preferred a special favorite of "Wall St. Journal."

Chemical developments of Vanadium Company are credited with being responsible for the advance which during December carried the stock to a new high for 1927.

Davison Chemical Company adds two officials of Pyrites Company of America, Rio Tinto Company's American subsidiary, to its board of directors, the Earl of Denbigh and A. D. Ledoux.

Monsanto Chemical Works, St. Louis, completes recapitalization work and the necessary papers have been filed with Missouri Secretary of State.

The Industry's Bonds

Jan. 3 Bid	Jan. 3 Asked	1927 High	1927 Low	1926 High	1926 Low	Total Sales Dec.	Total Sales 1926	ISSUE	Date Due	Int. %	Int. Period	Orig. (1) Offering
								NEW YORK STOCK EXCHANGE				
												$
105½	105	105	97½	106	103	231	2,490,000	Am. Agri Chem	1941	7½	F. A.	30,000
108	107½	109½	107½	101½	99	256	702,000	Am. Smelt & Refin "A" 6%	1947	5	A. O.	...
102½	101½	103½	100½	109	106	69	2,483,000	Am. Smelt & Refin "B" 5%	1947	6	A. O.	...
105½	105½	105½	103½	104½	101½	802	6,504,000	Anaconda Copper Mng	1953	6	F. A.	100,000
112½	112½	116½	106½	109½	102½	2,318	6,064,000	Anaconda Copper Mng	1938	7	F. A.	50,000
96½	96½	97	87	100½	84	466	8,302,000	Anglo Chilean	1945	7	M. N.	16,500
102½	102½	103½	100½	102½	99½	38	1,001,000	Atlantic Refin	1937	5	J. J.	15,000
102	102	102½	100½	...	...	32	124,000	By product Coke	1945	5½	M. N.	8,000
		104½	101½	103½	100½	77	310,000	Corn Product Refin	1934	5	M. N.	10,000
		101½	90	95½	92	1	106,000	Davison Chem Deb	1931	6½	J. J.	3,000
110	110	111½	106	110	93	99	944,000	General Asphalt	1939	6	A. O.	5,000
80	81	92½	81½	97½	88½	11	258,000	Int. Agric. Corp	1932	5	M. N.	30,000
84½	86		103½	85½	79			Int. Salt	1951	5	A. O.	12,000
131	130½	133½	...	107	98	2,228	4,966,000	Lig. Carbonic Corp	1941	6	F. A.	5,000
98½	99½	99½	96	...	...			Solvay Am. Invest. Corp	1942	5	M. S.	15,000
103½	103½	104½	101½	109½	102½	401	8,841,000	Standard Oil N. J	1946	5	F. A.	120,000
101½	101½	101½	98½	101½	101	127	651,000	Tenn. Cop. and Chem	1941	6	A. O.	3,000
91		95½	91	94½	91½	8	192,000	Va. C. & C	1949	5	M. S.	...
								NEW YORK CURB				
97½	97½	99½	95½	...	...	26,200		Agri. Mtge. Bk. of Col	1946	7	J.O.	...
97½	97½	99½	96	...	...	25,300		Agri. Mtge. Bk. of Col	1947	7	J. J.	3,100
101½	101½	101½	99	...	...	582,000		Alum Co. of Am	1952	5	M. S.	60,000
95½	95½	95½	94	...	...	458,000		American Cyan	1942	5	A. O.	5,000
101½	101½	102½	101½	103½	101½	170,000		Anaconda Cop	1929	6	J. J.	25,000
99½	99½	99½	95½	...	...	556,000		Koppers Gas and Coke	1947	5	J. D.	25,000
103	102½	103	98	99½	95	31,000		Natl. Dist. Prod	1935	6½	J. D. 15	3,500
99	99	99½	96	...	...	86,300		Solvay Am. Inv	1942	5	M. S.	15,000
100½	100½	100½	99	99½	96	310,000		Swift & Co	1932	5	A. O.	50,000
89½	89½	99	90	99	96½	164,000		U. S. Ind. Alc	1941	6½	M. N.	...
102½	102½	103½	98½	...	...	66,600		Westavco Chlorine Prod	1937	5½	M. S.	2,500
								BOSTON				
105½	105	105	97½	106	103			Amer. Agri. Chem	1941	7½	F. A.	30,000
103	103	102½	101	102½	99½	10,000		Swift andCo	1944	5	J. J.	50,000
								CHICAGO				
102½	102½	103½	101½	102½	99½	14,800		Swift and Co	1944	5	J. J.	50,000
a)101	103	101½	99					Westavco Chlorine Prod	1937	5½	M. S.	2,000
								UNLISTED				
85	90			98½	95			American Solvent & Chem	1936	6½	M. S.	2,200
								du Pont Building Corp	1940	5	J. D.	1,500
				99	Bid			Glidden	1940	6	M. S.	3,000
								LONDON				
		251	£25-7½					Snia Viscosa	1951	7½	J. D. 30	£1,400

Stocks Sold at Auction

Wed. Dec. 7, 1927
Adrian H. Muller & Sons, N. Y. ..... $ per sh
250 Butterworth-Judson Corp., com. ..... 5 lot
50 Copper Products Co., pfd. A
880 " " " com. } ..... 15 lot
10,000 Carson Free Gold M. & M. Co.
100 Hydrogenated Oil Co. ..... 5 lot
50 K-B Pulverizer Corp., pfd. ..... 40 lot
R. L. Day & Co., Boston
100 Amer. Glue Co., com. 46½-46¾
Wise, Hobbs & Arnold, Boston
10 Amer. Glue Co., com. 48¾
400 Antimony Corp., pfd. {
200 " " com. } ..... 27 lot
200 Southern Commercial Oil & Turpentine Co., pfd. {
200 " " " " " com. } ..... 10 lot
Wed. Dec. 14, 1927
Adrian H. Muller & Sons, N. Y.
100 Celanese Corp. of Amer. (new) 96
1,424 Dry Ice Corp. of Amer. com. 8½
1 DuPont de Nemours 314½
25 Liquid Carbonic Corp. 65¼
45,000 United Zinc Smelting Corp. ..... 500 lot
Wise, Hobbs & Arnold, Boston
25 Merrimac Chem Co. ..... 83 ex-div.
5 " " " ..... 83 ex-div.
R. L. Day & Co., Boston
20 Amer. Glue Co., pfd. 117
Wed. Dec. 21, 1927
Adrian H. Muller & Sons, N. Y. ..... $ per sh.
50 Dry Ice Corp. of Amer., com. ..... 750 lot
11,182 United Dyewood Corp., com. 3½
63,000 United Vanadiaum Corp., com. ..... 10 lot
100 U. S. Rayon Corp., pfd. ..... 10 lot
R. L. Day & Co., Boston
22 Amer. Glue Co., pfd. 117½-117½
Wise, Hobbs & Arnold, Boston
100 Amer. Glue Co. 42
50 Asbestos Corp. of Amer. 1
Barnes & Lofland, Phila.
$82,000 Amer. Manganese Mfg. ..... 75 lot
Wed. Dec., 28, 1927
Adrian H. Muller & Sons, N. Y.
1,175 Amer Dan Bottle Seal Corp., com. {
96 " " " " " pfd. } ..... 30 lot
190 Butterworth-Judson Corp., pfd. ..... 5 lot
2,734 Carboloid Products Corp. ..... 50 lot
$50,000 Celotex Co. 90%
1,250 Commercial Chem. Co., of Tenn., pfd. ..... 250 lot
300 " " " " " B. ..... 25 lot
100 Miner-Edgar Co., com. ..... 125 lot
10 Standard Gypsum Co., pfd. {
5 " " com. } ..... 35 lot
103 White Tar Co. of N. J. pfd. 10
Barnes & Lofland, Phila.
100 National Gypsum Co. 26

National Distillers has been a much be-rumored stock during December. The organization of the American Medicinal Spirits Corporation and the revival of the story of Du Pont buying has been accompanied by reports of various and sundry chemical developments. The perfection of the glycerine process; the discovery of a new method of acetic acid synthesis; and a new method of lactic acid manufacture are all mentioned more or less frequently.

For purposes not disclosed, so the London cables report, Imperial Chemical Industries, Ltd. asks shareholders to authorize increase of from £16,220,000 to 22,800,000 in £1 preference shares.

Mathieson Alkali earnings are prognosticated in excess of $11 a share for 1927, and the advice in customers rooms is that this stock is "a good long haul investment."

The Industry's Stocks

1928 Jan. 1st Bid	1928 Jan. 1st Asked	1927 High	1927 Low	1926 High	1926 Low	Sales In Dec.	Sales Since Jan. 1, '27	ISSUES	Par $	Shares Listed	An. Rate	Earnings $-per share-$ 1927	Earnings $-per share-$ 1926
183	185	199½	134½	146¾	107½	38,833	455,833	Air Reduction	No	223,445	$5.00	9 mo. 8.97	10.83
153	153½	169½	131	146¼	106	147,366	3,695,266	Allied Chem. & Dye	No	2,178,109	4.50		9.79
122½	123½	124	120	123½	118¼	1,533	24,733	7% pfd	100	392,849	7.00		61.28
19	19½	21½	8½	34½	9	81,466	279,066	Am. Agricultural Chem.	100	333,221	...	deficit	...
61	69½	72½	28½	96½	34¾	117,566	378,066	pfd.	100	284,552	...		3.59
74¼	75	77¼	43¾	*344½	38¼	767,933	7,528,433	American Can	25	2,473,918	2.00		4.38
140	142	141¾	126	130¾	121	1,466	26,916	pfd.	100	412,333	7.00		33.31
64	64½	72½	20½	52¾	25½	139,466	1,062,966	American Linseed	100	167,500	...		...
86	87½	92½	46½	87	67¼	8,800	216,550	pfd.	100	167,500	7.00	7 mo. 6.00	.62
46	46½	49¼	36¼	57¾	42½	115,266	224,866	American Metal Ltd.	No	594,278	4.00	9 mo. 2.54	3.88
110	115½	113½	108	120	113½	996	6,156	pfd.	100	50,000	7.00	9 mo. 35.51	53.15
183½	184	188½	132¾	152	109½	335,133	4,567,133	Amer. Smelt and Refin.	100	609,980	7.50	6 mo. 11.08	23.38
133	133½	133	119½	122¾	112½	3,000	35,710	pfd.	100	500,000	7.00	6 mo. 17.01	35.52
6	7	10¼	5½	12½	5½	7,000	80,800	Amer. Zinc & Lead	25	193,120	...	9 mo. Nil	...
40	42½	51¼	35	54½	20	8,900	119,600	pfd.	25	96,560	...	9 mo. 2.31	...
58½	58¾	60½	41¼	51¾	41½	546,900	1,493,400	Anaconda Copper Mining	50	3,000,000	3.00		4.74
60¼	61¼	63	38	43¾	34½	41,633	132,443	Archer Dan. Mid.	No	200,000	...	9 mo. 24.97	6.35
113	.....	113½	106	108	100	247	3,347	pfd.	100	43,000	7.00	9 mo. 26.90	35.23
62	65	70	56½	64	54	3,233	25,593	Atlas Powder Co.	No	260,393	4.00	6 mo. 2.61	7.04
103	105	107	98	97¾	94	133	6,398	pfd.	100	90,000	6.00	6 mo. 10.58	26.46
107½	108	131¾	104	128¾	97	119,033	1,000,933	Atlantic Refining	100	500,000	...	9 mo. Nil	11.24
4½	4¾	5½	3¾	6½	4	23,300	109,700	Butte Copper & Zinc	5	600,000	.50	9 mo. 0.09	.32
9½	10⅛	11¼	7⅜	16½	7⅛	30,133	126,433	Butte Superior Mng.	10	290,197	2.00	9 mo. 0.70	1.71
1½	2	2¼	1½	2¼	1½	14,933	125,133	Calla Z. & L.	10	723,355	...	9 mo. 0.08	...
22¾	22¼	24¼	14¼	18½	13¾	245,900	378,300	Calumet & Hecla	25	2,005,502	1.50	9 mo. 0.13	.75
54	54¼	55¼	42	49¼	36½	45,933	718,833	Certainteed Prod.	No	307,000	4.00	9 mo. 4.85	6.02
118¾	119	118¾	106	106½	100	100	4,800	1st pfd.	100	43,000	7.00	9 mo. 44.82	54.30
42	42¾	44¾	33½	36¾	30	363,533	1,380,733	Chile Copper	25	4,435,595	2.50	6 mo. 1.26	2.65
91½	93¼	101½	66¾	70½	55½	24,333	354,133	Columb Carbon	No	204,131	4.00	9 mo. 3.75	6.51
167½	169	203	145	237	118½	95,620	382,220	Commercial Solvents	No	108,861	4.00	9 mo. 7.58	14.13
84	84½	86¾	58¾	92½	70	93,800	247,200	Cont. Can	No	500,000	6.00	7 mo. 4.55	6.36
123	124	126	120	126	117	230	3,650	pfd.	100	52,930	7.00	7 mo. 47.07	70.55
64¼	65	68	46¾	51¾	35¾	145,300	2,910,725	Corn Products	25	2,530,000	2.00	9 mo. 2.69	4.03
138	141	142½	128	130½	122½	1,266	14,206	pfd.	100	250,000	7.00	9 mo. 32.50	47.73
45½	35½	48½	26¼	46¼	23¼	325,000	919,100	Davison Chem.	No	310,000	...		...
40½	41¼	42¾	36½	104¼	31	27,266	126,466	Devoe & Rayn A	No	95,000	2.40	3.50	5.22
108	109½	114½	101	109	99	.....	3,130	1st pfd.	100	18,096	7.00		49.70
119½	....	118	105½	110½	100¼	1,933	35,100	Dupont deb.	100	795,212	6.00	9 mo. 45.45	52.51
321	322½	343¾	168	*360	149	51,300	1,996,300	Dupont de Nemours	No	2,661,658	9.50	9 mo. 12.30	13.98
163¾	164½	175½	126½	136¾	106¾	14,433	1,364,700	Eastman Kodak	No	2,055,340	5.00		9.50
125	129½	131½	119½	117½	115	333	2,173	pfd.	100	61,657	6.00		322.11
125	155	97	75½	111¾	41	200	30,200	Fed. Mining & Smelting	100	50,400	...		35.95
70	70½	71½	46¼	56¾	32½	279,433	3,246,500	Fleischmann	No	4,500,000	3.00	9 mo. 3.20	4.08
105½	105½	106½	34	36	19¾	284,900	443,100	Freeport Texas	No	729,733	4.00	9 mo. 1.47	2.48
81½	82	96½	65	94½	50	138,733	2,539,100	General Asphalt	100	243,550	...	6 mo. 0.61	8.11
122	130	144¼	107½	140½	94½	600	38,700	pfd.	100	68,742	5.00	6 mo. 4.20	27.58
20¾	20¾	22	14½	25½	15¾	133,233	497,900	Glidden	No	400,000	2.00	3.03	3.41
94½	95	101	86	95	83½	3,810	19,300	pfd.	100	71,922	7.00	6 mo. 7.35	25.98
73½	73½	78¾	42	56½	41½	173,566	1,093,900	Gold Dust	No	318,586	...	6.20	3.01
66½	66¾	70¾	43½	48¾	40	32,000	267,400	Household Prod.	No	575,000	3.50	6 mo. 2.64	5.22
15	16	16¾	6¾	26½	9¼	36,666	107,800	Intern. Agri.	No	441,695	...	Loss	1.60
59½	59¾	65	33	95	57	18,600	75,200	pfd.	100	100,000	...	Loss	14.06
85½	85½	89½	38½	46½	32¾	1,056,100	5,847,700	Intern. Nickel	25	1,673,374	2.00	9 mo. 2.26	3.00
110½	....	110	103⅜	104½	101½	.....	3,470	pfd.	100	89,126	6.00	9 mo. 46.94	62.35
65⅛	70	75	63	75	75	456	2,696	Intern. Salt	100	60,771	6.00	6 mo. 2.64	8.35
76	76½	78¾	45	58¼	43¼	230,733	406,800	Liquid Carbonic Corp.	No	125,000	3.60	5.90	11.34
126	126½	132¼	82	106½	62½	40,633	352,400	Matheison Alk.	No	147,207	4.00	9 mo. 8.48	9.88
113	117½	120	103	99½	Bid	80	1,720	pfd.	100	24,750	7.00	9 mo. 55.68	67.85
18¼	19	20¾	13½	17¾	11	123,566	228,300	Miami Copper	5	747,114	1.50		1.52

*Old stock.

1928 Jan. 1st Bid	1928 Jan. 1st Asked	Price Range 1927 High	1927 Low	1926 High	1926 Low	Sales In Dec.	Sales Since Jan. 1, '27	ISSUES	Par $	Shares Listed	An. Rate	Earnings $-per share-$ 1927	Earnings $-per share-$ 1926
52¼	53¼	56⅜	17	34	12⅜	159,366	1,418,400	National Dist. Prod	No	167,651	...	9 mo. Nil	...
62	67	69¼	43	73¼	37½	13,033	113,400	pfd	No	109,795	...	9 mo. 1.62	...
126¾	126½	135	95	181	138	7,906	310,600	National Lead	100	206,554	8.00		34.34
139	139½	116½	104¼	120	116	485	22,900	pfd	100	243,676	7.00		36.95
22¾	23	27⅛	19½	24	16⅞	10,700	395,700	Penick & Ford	No	433,773	...	9 mo. 1.48	1.37
160	162½	168½	126	131	117	29,100	2,701,200	Peoples Gas Chi	100	60,000	8.00	10.22	11.04
42¼	42⅞	43⅞	36	48½	36⅜	38,266	146,800	St. Joseph Lead	10	1,951,517	2.50	1.85	4.21
39¼	39⅞	41⅜	35½	46⅜	37½	129,066	2,274,700	Standard Oil Co of N. J	25	24,262,532	1.00		5.01
31	31½	34½	29½	47½	30⅜	206,850	1,478,700	Standard Oil Co. of N. Y	25	17,023,928	1.60		1.94
10⅜	10½	13½	8½	16	10	23,400	392,000	Tenn. Cop. & Chem	No	794,624	1.00		1.31
78½	79	81⅜	49	58	48	515,100	8,389,500	Texas Gulf & Sulfur	No	2,540,000	4.00	9 mo. 3.56	3.69
144½	145	154½	98⅜	100⅜	77½	559,950	3,006,400	Union Carbide	No	2,827,470	6.00	9 mo. 6.64	9.07
6	7	10	3½	12	6		2,980	United Dyewood	100	139,183	7.00	9 mo. Nil	...
43½	45½	49	36½	58	49⅜	543	3,943	pfd	100	39,500	...	6 mo. 2.72	3.88
108	109	111⅜	69	84½	45⅜	119,000	1,416,500	U. S. Ind. Alc	100	240,000	5.00		9.04
117½	121	121	107½	114⅛	99½	4,000	785,900	pfd	100	60,000	7.00		35.16
47½	48½	48⅛	26⅛	69	31⅜	31,800	261,900	Va. Car. Chem Com. 6% pfd	100	213,350	...		6.73
89½	90	91	73	98½	83	5,200	39,900	7% pfd	100	142,910	7.00		17.54
								NEW YORK CURB					
123½	123	145½	67⅛	76	54½	14,566	71,366	Aluminum Co. of America	No	1,427,625	...		...
		35⅛	34	32½	31		400	Aluminum Mf'g Co	No	325,860	2.00		...
40½	40	40½	26	46½	35	500	1,200	Amer. Cyan. "A"	20	65,943	1.20	3.09	3.49
40⅜	39½	43½	25	47	32½	20,800	56,300	"B"	20	263,772	1.20	3.09	3.49
14½	14	18½	3½	35¼	7½	13,333	259,133	Amer. Rayon Prod	No	110,000	1.00		Nil
27½	27	29	11			10,800	44,430	Amer. Solvents & Chem	No	160,000	...		Nil
30½	30	31½	14	14¼	13½	11,000	224,100	Anglo Chile Nitrate	No	1,756,750	...	Loss	Loss
37⅜	37½	43½	22	34	16½	12,133	43,833	Canad. Ind. Alc	No	800,000	1.28	2.49	2.63
100⅜	99½	117	44			33,833	321,408	Celanes Corp of Am	No	1,000,000	...		1.80
112½	112½	129½	60	26	13	5,933	68,083	Celluloid Co	100	70,980	...		...
		133½	113½	75	51	633	24,093	pfd	100	24,551	...		...
87½	87½	91	84	*207	83	1,158	18,683	Celotex pfd	No	164,730	3.00		5.06
116	120	126	76½	82½	65	1,000	20,000	Chesebro Mfg Co	25	120,000	4.00		8.06
37⅞	37⅞	38½	24⅛	35½	23	3,966	34,686	Courtaulds	£1	£12,000,000	16½%		...
194	200	202	180	164	140½	140	590	Hercules Powder	100	147,000	12.00	9 mo. 12.09	18.18
121	121	121	114	118	109	103	1,423	pfd	100	111,392	7.00		30.82
		10	7½	2½	1	15,000	28,500	Heyden Chem	10	150,000	...		...
21¼	20½	24½	24½	19⅛	3¾	390,833	1,088,133	Indus. Rayon "A"	No	452,544	...		0.32
123	121½	126½	55½	62½	50½	179,900	1,459,800	Johns-Manville	No	750,000	...		2.27
				46½	39½		23,020	MacAnd & Forbes	No	376,748	2.60	9 mo. 2.36	4.34
39	38⅞	39	37½	....	....	1,366	2,266	Monsanto Chem	50	62,000	...	9 mo. 5.17	5.60
184½	184½	194½	178	210	178	1,790	12,690	N. J. Zinc	100	490,816	8.00		14.34
94½	94½	112	60½	180	177	5,933	52,658	Palmolive Peet	No	1,500,000	...	8.09	2.86
99¼	99½	105½	84	91	71	1,617	4,317	Penn Salt	50	150,000	5.00		6.08
9	9	14½	8	14⅜	10¼	933	20,043	Pyrene Mfg	10	223,158	2%	6.42	2.38
68½	68½	68½	44	45½	35	375	10,425	Sherwin William	25	594,445	3.00		5.59
19½	19½	20½	13½	22½	11⅛	10,833	58,533	Silica Gel	No	600,000	...		...
79½	78½	81½	64⅝	70½	60½	139,300	2,073,800	Standard Oil Co. of Indiana	25	9,136,618	...		6.03
9	9	12	5	16	4½	600	9,500	Snia Viscosa	150 lire	6,666,666⅔	.72		6.86
17½	18	21	13½	23	15	350	5,760	Swan & Finch	25	34,458	.87½		...
125½	125	130	115½	119	110	2,617	26,817	Swift & Co	100	1,500,000	8.00		10.43
460	460	499	145	240	153	8,706	67,201	Tubize "B"	No	78,868	...		...
92	90	110½	82½	166	125	4,767	29,892	U. S. Gypsum	20	687,875	8%		11.35
73	72	77	50½	57½	49½	13,800	153,745	Wesson Oil and Snow	No	300,000	4.00	5.26	8.71
								West End Chem Co	1	2,053,472	...		...
				10	10			Westvaco Chlorine Prod	No	10,000	...		11.18
								CLEVELAND					
		27½	20	34½	24½		100	Am. Vitrified Prod	50	70,000	7.50		2.19
112½	112½	112½	70	80	70	113	1,018	Dow Chem	No	100,000	4.00		...
104½	106	106½	100	102	100	60	639	pfd	100	30,000	7.00		...
		21¼	15½	25½	15⅜	100	375	Glidden	No	400,000	2.00	2.25	3.41
		100	84	95	83¾	967	3,126	pfd	100	71,922	7.00	6 mo. 7.35	25.98
133	133	133	125	145	117	85	2,399	Grasselli	100	215,704	...		10.24
107	109	109½	102½	103½	101½	1,067	4,846	pfd	100	123,742	6.00		23.68
20⅛	22	24½	4½	19⅛	3¾	16,251	39,744	Indus. Rayon "A"	No	451,314	...		2.27
65	66	70	44	45½	35	3,524	16,722	Sherwin William	25	594,445	3.00	6.42	5.59
								PITTSBURGH					
24½	26	33½	18	34½	24½	1,077	2,910	Am. Vitrified Prod	50	70,000	7.50		2.19
								CHICAGO					
72	70½			90	51⅜			By-products Coke 2	No	189,931	$3.00	9 mo. 5.14	9.16
				112	101			pfd	100	15,222	9%		123.33
87½	85	89	52	87½	83½			Celotex	No	189,811	3.00		5.06
38⅛	37½	39	37			14,962	26,498	Monsanto Chem	50	62,000	...	9 mo. 5.17	5.60
125½	124½	130	115½	119	110	35,008	114,458	Swift & Co	100	1,500,000	8.00		10.43
		152½	99	100⅜	77½	117	11,373	Union Carbide	No	2,827,470	6.00	9 mo. 6.64	9.07
93	88½	110½	82	166	125	29,920	202,171	U. S. Gypsum	20	687,875	8%		11.35
								CINCINNATI					
125	125	126¾	113½	56½	32½	28	360	Fleishmann pfd	100	12,295	6.00		4.08
250	250	250	177	192	139½	3,565	43,825	Proc. & Gam	20	1,250,000	4.75		9.17
61½	60	62½	38	63	39½	2,580	12,419	United States Can	No	62,500	...		3.00
103	103	103	97½	105	99	235	2,071	pfd	100	20,000	7.00		15.20
								BOSTON					
23⅜	22½	17⅞	14½	18½	13⅜	66,000	166,075	Calumet & Hecla	25	2,005,502	1.50	9 mo. 0.13	.75
125½	125½	130½	115	119	110	1,539	22,317	Swift & Co	100	1,500,000	8.00		10.43
								DETROIT					
				62	39			Charcoal Iron	10	283,935	...		...
								ST. LOUIS					
		47	36	53½	42	1,643	3,168	South Acid and Sulfur Co	No	52,000	3.00		...
								PHILADELPHIA					
100½	100	105½	74½	91	71	8,059	37,437	Penn. Salt	50	150,000	5.00	8.09	6.08
114½	114⅜	118½	89½	144½	84	64,397	829,285	United Gas Imp	50	2,130,088	...		4.59
								MONTREAL					
35	34½	39½	20	25⅜	16			Asbestos Corp	No	200,000	1.50		1.02
37½	37	43½	21½	34	16½			Canada. Ind. Alc	No	800,000	1.28	2.49	2.63
125	125	207	142	148½	125			Sherwin William of Can	100	40,000	6.00	8.84	9.54
								BALTIMORE					
		39½	27	46¾	23½		1,340	Davison Chem	No	310,000	...		...
20½	15	20½	15	22½	13	1,242	19,836	Silica Gel	No	600,000	...		...
								UNLISTED					
								Calco Chem Co pfd	100	60,000	8.00		...
160	170			148	Bid			Casein Co	100	21,196	7.00		7.10
				82	69½			Cleve Cliff Iron	No	400,000	2.00		4.32
				112½	Bid			Kellogg (Spencer) & Sons	100	119,539	...		...
71	75	89	55	73	50½			Merck & Co pfd	100	33.950	4.00		7.60
								Merrimac	50	70,560	...		...
		335	160	213	141			Royal Baking Powder	100	100,000	8.00		...
		110	100	103	99½			pfd	100	100,000	6.00		...
101½				108½	107			Tubize "A"	No	20,000	...		...

*Old Stock

The Trend of Prices

Healthy Volume of Contract Business Indicates Good Year For Chemicals

Most Factors Report Very Satisfactory Bookings For 1928—Ammonium Chloride of Prime Interest During Past Month—Copper Sulfate Advances Again—Naval Stores Show Signs of Recovery—Good Year Predicted For Fertilizer Industry.

The fact that a good year for 1928 is predicted for a major portion of industry, most certainly augers well for the chemical manufacturing fields, for with a wide diversification of distribution among these other industries the volume of chemical sales for the year can be accurately gauged by the prosperity of these consuming industries.

Alkalies, which are always looked upon as an index to conditions in the chemical industry itself, have been moving very well for the past six weeks or two months for contract throughout 1928. Manufacturers in this group have practically completed their work of lining up accounts on contract and it has been estimated that at the end of December between ninety and ninety-five per cent. of this type of business had been consumated for the coming year. There was no apparent effort necessary to take business at the scheduled prices as has been in the case in some instances in former years. In fact, in the case of anhydrous ammonia, the sale has been so brisk as to preclude the possibility of sellers offering any of the usual concessions such as protection against decline and cylinders loaned without charge, which are nothing more or less than concessions on the openly quoted price. Caustic soda, liquid chlorine, bleaching powder and soda ash, while not so outstanding as anhydrous ammonia have all been moving in substantial volume. While it is too early to give accurate estimates on the tonnage that will be moved the amount of business closed in December should assure a very favorable comparison with the sales of previous years.

December is rarely a month in which anything startling in price changes or market trends is experienced. Last month was no exception to this rule and as usual spot business was neglected in favor of contract business. As a result there were practically no price movements of importance. There were, however, a few movements worthy of comment and the decline in white ammonium chloride was perhaps the most important of these.

The Ammonium Chloride Position

For some months past competition between domestic and importing factors in ammonium chloride has been in evidence and during December domestic makers made a real effort to shake off imported competition in this item by two reductions in price, calculated to place the market below competition of importers and also to induce buying. The first of these moves has been successful to date, as importers claim not to be able to meet the most recent cut because this move has not been authorized by their foreign principals. An the imported level has been but a few cents higher than present American quotations for some time past it is not unlikely that they will meet this decline before many days have passed. On the other hand, domestic makers seem determined to keep what advantage has been gained and the buyers market should continue for the present at least. Quicksilver is another article that has been coming in for attention by its slight recession from the strong position occupied throughout the Fall months. Just following the turn of the year, importers again reduced the price so that the decline has totaled about $2.00 a flask since early December. This movement is not startling, but is significant in view of advices from abroad that the London primary market has eased off 10 shillings in the last two weeks with further reductions looked for almost daily. Buying has fallen off until it is now of a most routine nature with consumers apparently looking for a sharp decline in a few weeks. This is hardly likely, for the market is basically sound and while factors here admit that a turn for the easier has taken place, they do not look for any concerted downward movement.

Glycerin and Alcohol

While there was no change in the position of glycerin during the month past, this market has also come in for some attention, because the advent of cold weather has had absolutely no strengthing effect on the position of any grade. The anti-freeze business has not developed to any extent and producers found themselves plentifully stocked at the turn of the year—a condition not condusive to higher market levels. The state of the alcohol market has been in much the same position in the Metropolitan district, with reports heard in many directions of cutting below the schedule price to secure what business there was available. Producers contend that outside of this district such conditions does not exist and sales are being made at the full schedule prices. Nothing has been learned as yet of the manner in which Commissioner Doran's system of allotment of production is functioning but producers are of the opinion that the move will be a good one for all concerned. It should be said that alcohol is passing through the winter months in a better condition than was the case in the same period of 1927 when the market was over stocked as the result of capacity production by practically all plants and the failure of the anti-freeze business to materialize in the manner expected.

Copper sulfate has been the outstanding item of strength in the chemical group of the month. Producers have recently advanced the price five cents per 100 pounds for January-February shipment and 15 cents per 100 pounds for March shipment. Beyond this they are very reluctant to consider business as the firm state of the raw material copper market indicates even higher prices. The export demand, particularly from South America has been brisk over the holidays and this has served to further strengthen the market.

Naval Stores in Better Position

Naval stores, shellac and tanning materials have featured the movement of the raw material group for the past four weeks. A comparison in turpentine and rosin prices during the first weeks of 1928 with 1927 is a striking proof of their weakness at the end of the year just past. Overproduction is the primary reason advanced for existing conditions. Comparison of stocks of both these items at Savannah bears out this contention for turpentine stocks on January 8, 1927 were 12,665 barrels as compared with 28,249 barrels on January 8, 1928 and rosin stocks were 86,209 barrels in 1927 as against 121,603 barrels this year. There has been general dissatisfaction among the naval stores producers on the state of the market and steps are likely to be taken either to curtail the production somewhat or open new and expand old outlets for the production. The market prices also show wide variations for the two years—a difference of $5.00 per 280 pounds existing in the rosin market and about 35 cents a gallon on turpentine. As concerns the present position, the arrivals at shipping ports have begun to drop off and both markets have taken a brace within the past ten days. Further advances are of course expected as the season progresses but the

basic position of the market is certainly much softer than was the case last year.

This recent statement from our correspondent in Savannah as to condition there should prove interesting.

"The turpentine market closed the first week of the year firm at 55c a gal. with only small reported sales of 11 barrels to one buyer. A week ago the market was reported at 50c a gallon, but the price has been rapidly advancing. As concerns the coming week turpentine may go a couple of cents lower, but the opinion here is that the bottom has been reached and within a week the price should advance again. Last weeks' advances only caused very small offerings. Receipts of turpentine last week were 442 barrels, sales reported 138 barrels, shipments 293 barrels and stocks to-day 28,249 barrels."

"Rosins closed last week firm on limited sales of 387 barrels. The present market shows advances for the week of between 25c and 50c per 280 pounds. Declines have been in evidence during the past two days, though advances again before the end of the week seem entirely possible. With small receipts between now and April, the actual demand will be sometimes in excess of receipts and competition among the buyers will force the market higher. There is plenty of high priced rosin being held for another advance. Receipts last week were 2,984 barrels, sales reported, 1,367 barrels, shipments 5,407 barrels and stocks at Savannah 121,603 barrels.

Fertilizer Outlook Brighter

Fertilizer manufacturers face 1928 with a better feeling toward the year than has been the case for some time past. In substantiation of this opinion we quote from a recent statement by the president of one of our leading fertilizer mixing companies.

"In my opinion there ought to be a very much greater demand for the agricultural chemicals which we produce than in any year for sometime past. The farmers who we serve, while in some cases have gotten smaller crops, have received as a general rule more money for their crops because of higher prices and a lower cost of production to them this past year, and we believe that this will have its affect on their purchases of agricultural chemicals during the planting season of 1928. There has been a gradual increase in price in all raw materials going into agricultural chemicals and indications are that the market will continue to grow firmer and prices will continue firm or with an advancing tendency during the entire season."

There is no question that prices on raw materials have been advancing and as farmers have been getting a better price for their products over the past year the obstacle of getting advanced prices should not greatly handicap the mixers this coming year. It will be interesting to note the effect on the sale of acid phosphate under its new name of superphosphate. There is a good deal of truth in the contention of the Fertilizer Association that under the new style the sale of this material should increase in communities where there is an aversion to using anything labeled "acid." The following interesting statistics prepared by the Fertilizer Association indicate that sales of superphosphates have been on the increase since the latter part of last year.

Production of superphosphate (acid phosphate) for November was not only 14.6% larger than for November, 1926, but it was 0.6% larger than for the previous month, while last year there was a decrease of 1% for November from the preceding month. Shipments to consumers and dealers for November were 5.4% more than for November, 1926, and the decrease from the previous month of 83.4% was not quite as large as the decrease of 84.5% shown for November, 1926, as compared with the previous month. In brief, the trend downward for November from the previous month this year was slightly less than the seasonal trend downward for the like period of last year. No very marked activity in shipments to consumers is yet shown, however.

Stocks were 4.2% less on November 30 than for the like date of 1926, and they showed an increase of 15.1% from the end of the previous month against an increase of 12.2% for the like period a year ago. Stocks at the end of November showed a decrease of 10.6% from the like period a year ago for the Southern Area but an increase of 11.9% for the Northern Area. This was due probably to the large stocks last year in the Southern Area rather than to small stocks this year.

Producers of Chilean nitrate of soda are also looking forward to a good year with an improvement in conditions of the market there and in consuming centers. It is hardly expected that the market will show any marked improvement until after this Spring, but by the opening of the new nitrate year on June 30, producers and sellers anticipate having the resale market more in hand.

Practically all other items in the fertilizer group closed 1927 in a very strong position and this includes tankage, fish scrape and bone meal.

Activity In Shellac

There has been considerable activity in the shellac market over the entire Fall period. T. N. grade has been particularly active and it is reported that stocks of this grade have been in the hands of one dealer with the result that prices have soared of recent weeks.

Tanning materials, usually given scant consideration, because of their price stability, have been much to the fore due to the firmness of valonia and wattle bark. Until recently the Turkish government had a ban enforced on the exportation of valonia and there was a genuine shortage on the markets of the world. This ban has been lifted and stocks are moving onto this market and the situation is approaching the normal again. Wattle bark likewise has been scarce and at a level almost 100 per cent. above its normal position. This was caused by an actual shortage on the primary market because of the depletion of trees from which the bark is taken. Following the war the bark was taken from the trees indiscriminately and it was necessary to wait for an entire new planting to come to maturity. Shippers report that stocks are again available and the market should be on an even keel by the Spring.

Strength Of Tallow Surprises

In the oil and fat group the unusual strength in extra tallow has been the outstanding feature. The market has advanced steadily for three or four weeks and continues so at this writing. Producers attribute this advance to a scarcity based on a curtailment of raw material supplies. Strangely enough with this advance in tallow the market for palm oil has shown no change, though it was supposed with any sign of advances in tallow, the soap makers would turn to plam oil for their raw material. No change in the position of tallow is anticipated for some time to come. Chinawood oil has fluctuated over a wide range for so short a period. Within the month the spot market has receded three cents a pound and jumped up again to a level above that which it held before the decline. The time honored excuse of trouble in the primary Chinese market is advanced as the reason for this most recent climb, but the knowledge that the best consuming demand is just around the corner is believed to have had something to do with the advance. The movement in Chinawood has been the most interesting of the entire market for the past six months. At one point last summer the market was almost double the present price due to conditions in China. Cottonseed oil, usually of prime interest has not shown any fluctuating tendencies since the early part of last month when a decline was recorded. Since that period the market has been rather routine, but steady. Denatured olive oil has been easing off for the past few weeks, heralding the approach of offers on new crop oil. This market has been falling off steadily since the reports in the Fall of big crops in Spain. Prior to that the market had been strong and an acute scarcity prevailed. Linseed oil

has moved a point or so in either direction but there have been no movements worthy of comment.

These movements and trends were probably of outstanding importance during the closing weeks of 1927. In general the market can be classed as quite steady going into the New Year, notwithstanding signs of weakness in some isolated cases.

The Year in Retrospect

During last year the chemical industry has made continued rapid strides to the fore as one of the country's major industries. Those outside the industry have begun to realize the absolute necessity of a strong domestic chemical industry and therefore, are showing more than a passing interest in its development. Probably two of the most important factors in arousing the country as a whole to the possibilities of chemistry as applied to industry, have been the widespread interest in the manufacture of rayon and lacquers, both distinctly chemical achievements. Also, the attention given some of our leading chemical and agricultural stock activities in financial circles, is a testimonial to the esteem in which the industry is held by those who control the nations finances. Among other contributing factors, the somewhat premature announcement of the consummation of the European chemical combinations and the subsequent outcry by a portion of the industry here, was a bit of publicity, which contributed important news to our daily and financial press for several weeks during last Fall.

In the December 27 issue of CHEMICAL MARKETS there appeared a prediction of what might be expected during the year to come. These expressions of opinion were gathered from leaders in many branches of the industry, including the heavy chemical, alcohol, and the wood and fine chemical divisions. All seemed in accord in the opinion that the present year should be one of continued forward strides by chemistry.

In fact, on reading these statements the impression gathered is one of caution against a too rapid expansion at a time when conservative progress will probably do much more to assure the prosperity of the industry.

Therefore, despite that time honored business retarder—Presidential Year—both the volume of business already taken for the year and the natural developments which may be expected as a furthering of research work, seem a criterion of the continuing of the chemical industry's program of expansion.

Europe Forms White Lead Convention

Signing of an international white lead convention, negotiations for which are understood to have been under way for nearly two years, is reported from London by Trade Commissioner Homer S. Fox. It is claimed that the present agreement is inclusive of all Europe.

Terms of the convention will take 1926 production as standard, so that producing countries are to have maximum quota equal to production in that year. Countries are apparently to be taken as units rather than as companies, although individual companies will be limited by quotas of their respective countries. While prices will be stabilized intercompany competition will be continued as heretofore, subject to the minimum price level.

Stabilized price of white lead for United Kingdom is expected to be about $35 per ton over pig lead price for material delivered at United Kingdom ports, with a higher margin for delivery to consumers' works.

Agreement is for period of six years and penalties are provided for violation of its provisions. Central office is to be located in London.

Inquiry by CHEMICAL MARKETS among the trade regarding the convention has brought forth the opinion that while American white lead manufacturers are not included in the convention, this move cannot in any way effect either the domestic or export volume of our business.

International Industrial and Chemical Co., Montreal, is incorporated with a capital of $75,000, to manufacture chemicals, dyes, minerals, spirits and chemical compounds.

Chemicals in Industry

I. G. Farbenindustrie A. G., secures patent covering improved method of applying basic dyes to cellulose acetate yarn. As the number of dyestuffs which can be applied to cellulose acetate are comparatively limited, this development is of some importance.

The claim of the patent is described as follows: Deviation for the process protected through main patent No. 439,004 concerning the dyeing of acetate rayon, conditional upon the discovery that in place of Pyridine the hydration products of this body can be used with equal facility and purpose.

Viscose Co. reports production of 3,935,000 lbs. rayon during December 1927, and sales of 3,845,000 lbs., which compares with 3,100,000 lbs. production and 3,000,000 lbs. sale for corresponding period 1926. Total production during 1927 was 40,960,000 lbs. and total sales 48,395,000 lbs., the latter including carry over at the opening of 1927. No such surplus is evident at this time.

Sales of British dyes and dyestuffs rose from £821,000 in 1907 to £6,077,000 in 1924, according to the third census on British production covering these years. Value of chemical output for same period increased by 130 per cent.

United States ochre imports from Marseilles district, France, for first nine months of 1927 amount to 13,559,716 pounds, valued at $239,814, as compared with 12,326,364 pounds, valued at $187,172 for corresponding period of previous year, according to Department of Commerce.

Proposed development of Lake George Antimony Mines, Canada, by Canadian International Corp., represented by Brig. Gen. Chas. A. Smart, will go forward without delay, according to an announcement by Chas. D. Richards, Minister of Lands and Mines, New Brunswick.

Du Pont announce the placing on the market of Du Pont Quinoline Yellow Concentrated, an acid color of very green and bright shade.

National Lead Co. advances Dutch Boy Liquid Lead, Dutch Boy flat paint, Dutch Boy first coater and Dutch Boy wall primer, 25c gal.

"FF" is the name of a new grade of rosin established by Secretary of Agriculture Jardine. The new grade will be effective April 1, 1928 and will be for rosin redder in color than that of present standards.

Nineteen firms, operating twenty-two plants, report for year ended August 31, 1927, production of 18,715,563 pounds calcium arsenate, 18,728,054 pounds lead arsenate and 5,743,048 pounds Paris green. For year ended June 30, 1926, twenty-one companies reported production of 5,363,320 pounds calcium arsenate, 16,898,214 pounds lead arsenate and 2,863,691 pounds Paris green.

French turpentine stocks, available for sale until April 30, are estimated at approximately 30,000 50-gallon barrels, according to Department of Commerce. Total stocks of rosin, for same period, are estimated at approximately 45,000 barrels of 370-kilo capacity.

Total exports of turpentine for November, 1927, were 736 metric tons, a decrease of 59 per cent. from November 1926. Rosin shipments totaled 5,151 tons.

Newport Pott Co., Wilmington, chartered in Delaware with authorized capital stock of 100 no par shares to engage in manufacture of dyestuffs and chemicals.

Prices Current

Heavy Chemicals, Coaltar Products, Dye-and-Tanstuffs, Colors and Pigments, Fillers and Sizes, Fertilizer and Insecticide Materials, Naval Stores, Fatty Oils, etc.

Chemical prices quoted are of American manufacturers for spot New York, immediate shipment, unless otherwise specified. Products sold f. o. b. works are specified as such. Imported chemicals are so designated. Resale stocks when a market factor are quoted in addition to makers' prices and indicated "second hands."

Oils are quoted spot New York, ex-dock. Quotations f.o.b. mills, or for spot goods at the Pacific Coast are so designated.

Raw materials are quoted New York, f. o. b., or ex-dock. Materials sold f. o. b. works or delivered are so designated.

The current range is not "bid and asked," but are prices from different sellers, based on varying grades or quantities or both. Containers named are the original packages most commonly used.

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Dec. 1927 68.6c

Acetone — Immediately following the first of the year, manufacturers advanced the C. P. price 1c gal. This move is traceable to a lessening in the available supply of raw material and a somewhat better movement of stocks into export channels. Since the advance, offers are heard on a very firm market at 13c @ 14c lb. as to quantity.

Acid Acetic — There has been no change in the price position over the month on any of the grades. Makers have been quite busy over the turn of the year with contract work and though the bulk of this business has been cared for, the market is still moving at a good gait.

Acid Citric — Has spent rather an uneventful month with no change in evidence, either as to price or the trend of demand. Crystals are held at 44c @ 55c lb. as to seller and quantity.

Acid Cresylic — Locally the market presents a firm appearance on the basis of evident strength on the British home market. Stocks in that country are reported as greatly diminished with a resulting advance in price. This firm situation has been in evidence for some weeks past and prices have been noticeably stronger. At the moment dark acid is held at 68c @ 70c gal., light at 72c @74c gal.

Acid Gamma — Manufacturers have made no visible change in their price views and firmness is quite prominent at $1.00 @ $1.06 lb. The first week of the year has not produced any sizable amount of business but from contract commitments made during the Fall, this year's business should exceed that of 1927. As prices held rather steadily during the past year, a re-occurrence of this condition is expected this year.

Acid Oxalic — Much the same condition has prevailed throughout the past month as has been the case for months. Domestic manufacturers still hold control of the market, with the output sold up and the market held firm at 11c @ 11½c lb. as to quantity.

Acid Sulfuric — Early in December leading manufacturers advanced the price on 60 degree and oleum 20 per cent. to $1.12½ 100 lbs. and $1.52½ 100 lbs. respectively. Otherwise the market has been unchanged with a good volume of business placed for the current year.

1914 July	1927 High	1927 Low	1927 Aver.		Current Market		1928 High	1928 Low
.....	.24	.24	.24	Acetaldehyde, drs 1c-1 wks...lb.	.24	.26	.26	.24
.....	.20	.20	.20	Acetanilid, tech, 150 lb bbl....lb.	.23	.24	.24	.23
.....	.29	.29	.29	Acetic Anhydride, 92-95%, 100 lb cbys.....lb.	.29	.35	.35	.29
.....	.38	.32	.37	Acetin, tech drums.....lb.				
.02½	.12	.12	.12	Acetone, CP, 700 lb drums c-1 wks.....lb.	.....	.13	.13	.13
1918	1.65	1.65	1.65	Acetone Oil, drs NY.....gal.	1.65	1.75	1.75	1.65
.....	.42	.42	.42	Acetyl Chloride, 100 lb cby...lb.	.42	.45	.45	.42
				Acids				
1.50	3.38	3.38	3.38	Acid Acetic, 28% 400 lb bbls c-1 wks.....100 lb.	.....	3.38	3.38	3.38
.....	11.92	11.92	11.92	Glacial, bbl c-1 wk...100 lb	.....	11.92	11.92	11.92
.....	.98	.98	.98	Anthranilic, refd, bbls.....lb.	.98	1.00	1.00	.98
.....	.80	.80	.80	Technical, bbls.....lb.	.....	.80	.80	.80
1.00	1.60	1.25	1.38	Battery, cbys.....100 lb.	1.60	2.25	2.25	1.60
.23	.57	.57	.57	Benzoic, tech, 100 lb bbls...lb.	.57	.60	.60	.57
.07½	.08½	.08½	.08½	Boric, crys. powd, 250 lb bbls.....lb.	.08½	.11	.11	.08½
.....	1.25	1.25	1.25	Broenner's, bbls.....lb.	.....	1.25	1.25	1.25
1917	.85	.80	.84	Butyric, 100% basis cbys...lb.	.85	.90	.90	.85
1917	4.90	4.85	4.89	Camphoric.....lb.	.....	4.85	4.85	4.85
.....	.25	.25	.25	Carbolic, 10%, 50 gal bbls..lb.	.25	.28	.28	.25
.....	.15	.15	.15	Chlorosulfonic, 1500 lb drums wks.....lb.	.15	.16	.16	.15
1918	.37	.25	.29	Chromic, 99%, drs extra...lb.	.25	.30	.30	.25
.....	1.00	1.00	1.00	Chromotropic, 300 lb bbls..lb.	1.00	1.06	1.06	1.00
.53	.44½	.43	.43⅜	Citric, USP, crystals, 230 lb bbls.....lb.	.44	.55	.55	.44
.....	.95	.95	.95	Cleve's, 250 lb bbls.....lb.	.95	.97	.97	.95
1918	.60	.57	.61	Cresylic, 95%, dark drs NY.lb.	.68	.70	.70	.68
1918	.70	.60	.63½	97-99%, pale drs NY....lb.	.72	.74	.74	.72
1918	.11	.10	.10½	Formic, tech 85%, 140 lb cby.....lb.	.11	.12	.12	.11
1918	.50	.50	.50	Gallic, tech, bbls.....lb.	.50	.55	.55	.50
1918	.74	.69	.72	USP, bbls.....lb.	...	.74	.74	.74
.....	1.00	1.00	1.00	Gamma, 225 lb bbls wks...lb.	1.00	1.06	1.06	1.00
1918	.57	.57	.57	H, 225 lb bbls wks.....lb.	.57	.63	.63	.57
.....	.67	.65	.65¼	Hydriodic,USP,10%soln cbylb.	...	.67	.67	.67
.....	.45	.45	.45	Hydrobromic, 48%, coml, 155 lb cbys wks.....lb.	.45	.48	.48	.45
.....	.80	.80	.80	Hydrochloric, CP, see Acid Muriatic.....				
.03	.06	.06	.06	Hydrocyanic, cylinders wks lb.	.80	.90	.90	.80
.....	.11	.11	.11	Hydrofluoric, 30%, 400 lb bbls wks.....lb.	.....	.06	.06	.06
.....	.85	.85	.85	Hydrofluosilicic, 35%, 400 lb bbls wks.....lb.	.....	.11	.11	.11
.019	.05½	.05½	.05½	Hypophosphorous, 30%, USP, demijohns.....lb.	.....	.85	.85	.85
.04	.13	.13	.13	Lactic,22%,dark,500 lb bbls lb.	.05½	.06	.06	.05½
.....	.52	.52	.52	44%, light, 500 lb bbls ...lb.	.13	.13½	.13½	.13
.....	.60	.60	.60	Laurent's, 250 lb bbls.....lb.	.52	.54	.54	.52
				Metanilic, 250 lb bbls.....lb.	.60	.65	.65	.60
1918	.07¾	.07¾	.07¾	Mixed Sulfuric-Nitric..... drs wks.....N unit	.07¾	.08	.08	.07¾
1918	.01	.01	.01	drs wks.....S unit	.01	.01½	.01½	.01
.....	.21	.18	.19½	Monochloroacetic, tech bbl.lb.	.18	.21	.21	.18
.....	1.65	1.65	1.65	Monosulfonic, F Delta bbls.lb.	.....	.65	.65	.65
1.15	1.35	1.35	1.35	Muriatic, 18 deg, 120 lb cbys c-1 wks.....100 lb.	.....	1.35	1.35	1.35
1.30	1.70	1.70	1.70	20 degrees, cbys wks..100 lb.	1.70	1.80	1.80	1.70
.....	.95	.95	.95	N & W, 250 lb bbls.....	.95	.95	.95	.95
1918	.55	.55	.55	Naphthionic, tech, 250 lb .....lb.	.55	.59	.59	.55
3.37½	5.00	5.00	5.00	Nitric, 36 deg, 135 lb cbys c-1 wks.....100 lb.	.....	5.00	5.00	5.00
4.50	6.00	6.00	6.00	40 deg, 135 lb cbys, c-1 wks.....100 lb.	.....	6.00	6.00	6.00
.07¼	.11¼	.11	.11	Oxalic, 300 lb bbls wks NY..lb.	.11	.11½	.11½	.11
.036	.08	.07	.07½	Phosphoric 50%, 150 lb cby.lb.	.08	.08½	.08½	.08
.23	.19	.16	.16½	Syrupy, USP, 70 lb drs...lb.	.....	.16	.16	.16
1918	.50	.50	.50	Picramic, 300 lb bbls.....lb.	.....	.50	.50	.50
.50	.45	.30	.41¼	Picric, kegs.....lb.	.40	.50	.50	.40
.....	.86	.86	.86	Pyrogallic, technical, 200 lb bbls.....lb.	.....	.86	.86	.86
.22½	.27	.27	.27	Salicylic, tech, 125 lb bbl...lb.	.27	.32	.32	.27
1918	.15	.15	.15	Sulfanilic, 250 lb bbls.....lb.	.15	.16	.16	.15
1.00	1.60	1.60	1.60	Sulfuric, 66 deg, 180 lb cbys 1c-1 wks.....100 lb.	1.60	1.95	1.95	1.60
1.00	1.20	1.20	1.20	1500 lb dr wks.....100 lb.	.....	1.20	1.20	1.20
.87½	1.10	1.10	1.10	60°, 1500 lb dr wks..100 lb.	.....	1.12½	1.12½	1.12½
1.25	1.50	1.50	1.50	Oleum, 20%, 1500 lb drs 1c-1 wks.....100 lb.	.....	1.52½	1.52½	1.52½
.....	42.00	42.00	42.00	40%, 1c-1 wks net.....ton	.....	42.00	42.00	42.00
.55	.30	.30	.30	Tannic, tech, 300 lb bbls...lb.	.30	.40	.40	.30
.30½	.37	.29½	.32½	Tartaric, USP, crys, powd, 300 lb bbls.....lb.	.34½	.35	.35	.34½
.....	.85	.85	.85	Tobias, 250 lb bbls.....lb.	.....	.85	.85	.85

Butyl Cellosolve and Brush Lacquers

BRUSH lacquers differ from automobile lacquers chiefly in their higher gum content and slower rate of drying.

These two conditions require considerable quantities of high boiling compounds that are good gum and nitrocotton solvents. To meet this need the Carbide and Carbon Chemicals Corporation now offers *Butyl Cellosolve*.

Butyl Cellosolve (Ethylene Glycol mono butyl ether) is an oily liquid of faint, but agreeable odor, boiling at 170° C. It is a powerful solvent for nitrocotton and an excellent solvent for gums and resins. Its dilution ratio for gasoline and petroleum is unusually high. These properties make it an ideal complement to Cellosolve in the manufacture of brushing lacquers.

Brush lacquers made with Cellosolve and Butyl Cellosolve are practically odorless. The rate of drying can be varied from one-half to two hours by regulating the proportions of the two solvents, but in either case the final film will possess high gloss due to the smooth and gradual deposition of gum and nitrocotton as the Butyl Cellosolve evaporates.

Neither Cellosolve nor Butyl Cellosolve contains ester groups. Hydrolysis and the development of acidity is therefore impossible in lacquers made with these solvents, thus eliminating all difficulty such as livering, geling and corrosion insofar as solvents are concerned.

CARBIDE AND CARBON CHEMICALS CORPORATION
Carbide and Carbon Building, 30 East 42nd Street, New York City

UCC

Unit of Union Carbide and Carbon Corporation

Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Dec. 1927 68.6c

Albumen — Both edible and technical grades of egg albumen are named at unchanged prices by the local sellers, but the absence of buying has produced lower quotations from some quarters. Meanwhile, the primary market has declined a trifle during the past fortnight, but is firm at the current prices. Blood albumen is slow at 45c @ 55c lb. The makers of vegetable albumen find a brisk demand at 60c @ 65c lb. for the edible material.

Alcohol — The market has shown a soft condition in the Metropolitan district for the past several weeks and though producers continue to quote schedule prices in this territory it is admitted that shading is taking place in all quarters. The demand from other sections of the country has been better since the advent of cold weather and the market in these sections is better maintained. The allotment of production, which has been of prime importance in this market for six weeks past, is expected to have a steadying influence on prices when the system is functioning correctly.

Ammonia — Contract closings have featured activity in both grades of ammonia since early December. Producers estimate that between 90 and 95 per cent. of this type of business had been placed by the end of 1927 and there has been a noticeable let down in the activity along these lines since the beginning of the year. Andydrous has been particularly strong. Sellers have refused to grant the usual concessions of a buyers market this season and the quotation of 13½c lb. is well maintained in all quarters. Aqua, though not so strong as anhydrous, has been moving in good volume.

Ammonium Chloride — Has been the outstanding item of the industrial chemical group for the past six weeks. In an effort to shake off imported competition domestic producers have lowered the price 30c 100 lbs. and at the moment the market for domestic white is at $4.70 100 lbs. in carlots for contract; $4.80 100 lbs. for carlots on spot and ranging to $5.25 100 lb. in less carlots as to quantity and position. Importers claim not to be meeting this latest reduction, lacking instructions from principles abroad on this latest movement. This reduction in price has served to bring out some increased business from consuming sources. Gray is in a better position as to price with quotations at 5.40 100 lb. for car lots on contract.

Ammonium Sulfate — Strength continues to be the outstanding feature of the market and prices are expected to advance further when the seasonal demand sets in later on in the month. Re-sellers are quite active in the South.

1914 July	1927 High	1927 Low	1927 Aver.		Current Market	1928 High	1928 Low
.....	2.75	2.00	2.60	Trichloroacetic, bottles....lb.	.....	2.75	2.75	2.75
.....	2.00	2.00	2.00	Kegs....lb.	.....	2.00	2.00	2.00
.....	1.00	1.00	1.00	Tungstic, bbls....lb.	1.00	1.25	1.25	1.00
.19	.45	.45	.45	Albumen, blood, 225 lb bbls...lb.	.45	.55	.55	.45
.40	.95	.80	.87	Egg, edible....lb.	.....	.82	.82	.82
.....	.92	.77	.82	Technical, 100 lb drs....lb.	.....	.80	.80	.80
1918	.60	.60	.60	Vegetable, edible....lb.	.60	.65	.65	.60
.....	.50	.50	.50	Technical....lb.	.50	.55	.55	.50
.....	.20	.19	.19½	Alcohol Butyl, Normal, 50 gal drs c-1 wks....lb.	.....	.20	.20	.20
.....	.20½	.19½	.19½	Drums, 1c-1 wks....lb.	.....	.19½	.19½	.19½
.....	.19¼	.18½	.19	Tank cars wks....lb.	.....	.19	.19	.19
1.70	1.70	1.70	1.80	Diacetone, 50 gal drs del...gal.	1.70	1.80	1.80	1.70
2.50	3.70	3.70	3.70	Ethyl, USP, 190 pf, 50 gal bbls....gal.	.....	3.70	3.70	3.70
.....	.50	.50	.50	Anhydrous, drums....gal.	.50	.55	.55	.50
1918	.52	.37½	.46	Completely denatured, No. 1, 190 pf, 50 gal drs drums extra....gal.	.....	.52	.52	.52
1918	.50	.29	.42	No. 5, 188 pf, 50 gal drs. drums extra....gal.	.....	.50	.50	.50
.....	.46	.25	.40	Tank, cars....gal.	.....	.46	.46	.46
.....	1.00	1.00	1.00	Isopropyl, ref, gal drs....gal.	1.00	1.25	1.25	1.00
.....	1.00	1.00	1.00	Propyl Normal, 50 gal dr...gal.	.....	1.00	1.00	1.00
.....	.80	.80	.80	Aldehyde Ammonia, 100 gal dr lb	.80	.82	.82	.80
1918	.65	.65	.65	Alpha-Naphthol, crude, 300 lb bbls....lb.	.....	.65	.65	.65
1917	.35	.35	.35	Alpha-Naphthylamine, 350 lb bbls....lb.	.35	.37	.37	.35
1.75	3.25	3.15	3.08½	Alum Ammonia, lump, 400 lb bbls, 1c-1 wks....100 lb.	3.25	3.30	3.30	3.25
5.00	5.25	5.25	5.25	Chrome, 500 lb casks, wks ....100 lb.	5.25	5.50	5.50	5.25
4.00	3.50	3.10	3.43	Potash, lump, 400 lb casks wks....100 lb.	3.10	3.20	3.20	3.10
5.00	5.25	5.25	5.25	Chrome, 500 lb casks wks ....100 lb.	5.25	5.50	5.50	5.25
.....	3.75	3.75	3.75	Soda, ground, 400 lb bbls wks....100 lb.	.....	3.75	3.75	3.75
17.00	27.00	26.00	26.08	Aluminum Metal, c-1 NY 100 lb.	.....	26.00	26.00	26.00
.....	.35	.35	.35	Chloride Anhydrous, 275 lb drums....lb.	.35	.40	.40	.35
.12	.17	.17	.17	Hydrate, 96%, light, 90 lb bbls....lb.	.17	.18	.18	.17
.....	.23	.23	.23	Stearate, 100 lb bbls....lb.	.23	.24	.24	.23
1.25	1.75	1.75	1.75	Sulfate, Iron, free, bags c-1 wks....100 lb.	.....	1.75	1.75	1.75
.87½	1.40	1.35	1.35½	Coml, bags c-1 wks..100 lb.	.....	1.40	1.40	1.40
.....	1.15	1.15	1.15	Aminoazobenzene, 110 lb kegs.lb.	.....	1.15	1.15	1.15
				Ammonium				
.25	.13½	.10	.10½	Ammonia, anhyd, 100 lb cyl...lb.	.....	.13½	.13½	.13½
.04¼	.03	.02½	.03	Water, 26°, 800 lb dr del....lb.	.....	.03	.03	.03
.....	.21	.21	.21	Bifluoride, 300 lb bbls....lb.	.21	.22	.22	.21
.08	.08¾	.08¾	.08¾	Carbonate, tech, 500 lb cs...lb.	.08¾	.09	.09	.08¾
6.25	5.05	4.85	5.00	Chloride, White, 100 lb bbls wks....100 lb.	4.70	5.15	5.15	4.70
.05½	.07	.05¼	.06	Gray, 250 lb bbls wks....lb.	5.40	5.75	5.75	5.40
.10	.11	.11	.11	Lump, 500 lb cks spot....lb.	.11	.11½	.11½	.11
.....	.15	.15	.15	Lactate, 500 lb bbls....lb.	.15	.16	.16	.15
.15	.06	.06	.06	Nitrate, tech, casks....lb.	.06	.10	.10	.06
.....	.27½	.27½	.27½	Persulfate, 112 lb kegs....lb.	.27½	.30	.30	27½
.....	.18	.18	.18	Phosphate, tech, powd, 325 lb bbls....lb.	.....	.18	.18	.18
2.60	2.30	2.55	2.41	Sulfate, bulk c-1....100 lb.	2.40	2.45	2.45	2.40
2.60	2.55	2.35	2.42	Southern points....100 lb.	.....	2.55	2.55	2.55
.....	59.70	56.85	57.56	Nitrate, 26% nitrogen 31.6% ammonia imported bags....ton	.....	60.85	60.85	60.85
.....	.55	.55	.55	Sulfocyanide, kegs....lb.	.55	.60	.60	.55
1.55	2.25	1.90	2.10¾	Amyl Acetate, technical, 50 gal drums....gal.	1.90	2.00	2.00	1.90
				Alcohol, see Fusel Oil....				
.10½	.15½	.15	.15	Aniline Oil, 960 lb drs....lb.	.15½	.16½	.16½	.15½
.32	.41	.41	.41	Annatto, fine....lb.	.41	.48	.48	.41
.....	.90	.90	.90	Anthraquinone, sublimed, 125 lb bbls....lb.	.90	1.00	1.00	.90
.....	.11½	.14	.12	Antimony, metal slabs, ton lots ....lb.	.....	.11½	.11½	.11½
.03¾	.15½	.14	.15	Needle, powd, 100 lb cs....lb.	.15½	.16	.16	.15½
1918	.17	.17	.17	Chloride, soln (butter of) cbys....lb.	.17	.18	.18	.17
.06	.16½	.16½	.16½	Oxide, 500 lb bbls....lb.	.16½	.17	.17	.16½
.11½	.28	.25½	.26½	Salt, 66%, tins....lb.				
.18	.20	.16	.17½	Sulfuret, golden, bbls....lb.	.16	.20	.20	.16
.15	.42	.37½	.38	Vermilion, bbls....lb.	.38	.42	.42	.38
.14	.18	.18	.18	Archil, conc, 600 lb bbls....lb.	.....	.12	.12	.12
.08	.12	.12	.12	Double, 600 lb bbls....lb.	.14	.15	.15	.14
.....	.16	.14	.15	Triple, 600 lb bbls....lb.	.16	.18	.18	.16
.....	.15	.12½	.13½	Argols, 80%, casks....lb.	.....	.08	.08	.08
.....	.08	.03	.06½	Coude, 30%, casks....lb.	.15	.16	.16	.15
.05½	.10½	.10½	.10½	Arsenic, Red, 224 lb kegs, cs..lb.	.10½	.11	.11	.10½
.03	.04	.03½	.04	White, 112 lb kegs....lb.	.....	.03½	.03½	.03½
.....	14.75	14.75	14.75	Asbestine, c-1 wks....ton	.....	14.75	14.75	14.75
.....	47.50	47.50	47.50	Barium, Carbonate, 200 lb bags wks....ton	47.00	50.00	50.00	47.00
.13	.12	.12	.12	Chlorate, 112 lb kegs NY...lb.	.12	.12½	.12½	.12
30.00	65.00	57.50	60.70	Chloride, 800 lb bbl wks...ton	55.50	60.00	60.00	55.50
1916	.13	.13	.13	Dioxide, 88%, 690 lb drs...lb.	.13	.13½	.13½	.13
.....	.04½	.04½	.04½	Hydrate, 500 lb bbls....lb.	.04½	.04½	.04½	.04½
.05½	.07½	.07½	.07½	Nitrate, 700 lb casks....lb.	.07½	.08	.08	.07½
17.00	23.00	23.00	23.00	Barytes, Floated, 350 lb bbls wks....ton	23.00	24.00	24.00	23.00
.....	.....	.....	.....	Bauxite, bulk, mines....ton	5.00	8.00	8.00	5.00
.39	.40	.37	.39	Beeswax, Yellow, crude bags..lb.	.37	.38	.38	.37
.40	.46	.38	.43	Refined, cases....lb.	.42	.43	.43	.42

Isco Chemicals News Notes

"Over a Century of Service and Progress"

Factories:
Niagara Falls, N. Y.
Murphysboro, Ill.
Owego, N. Y.
Jerey City, N. J.

INNIS, SPEIDEN & COMPANY
ESTABLISHED 1816
46 CLIFF STREET, NEW YORK

Branches:
Chicago
Boston
Philadelphia
Cleveland
Gloversville

1816 JANUARY, 1928 1928

CONTRACT BUSINESS SHOWS MARKET STRONG

Looking over our contractual business for 1928 we find already booked a larger tonnage and greater dollar value than we carried on our books a year ago. Thus, we have tangible evidence of the end of "hand-to-mouth" buying which has characterized chemical purchasing since 1920, and the best indication that chemical consumers are not only planning substantial manufacturing programs; but also that they believe the price trend of raw materials is more apt to be up than down during 1928.

While the average volume of 1927 business in chemicals was hardly up to the 1926 totals, the rate of consumption has increased steadily during the closing six months of the year just past.

Caustic Soda on large contracts over 1928 has been booked at price concessions over 1927 quotations; but the spot market is firmly supported by indications of a record export year. The major part of our 1928 production is contracted, but we have a reserved few carloads for spot business for shipment from Niagara Falls, where our subsidiary company, the Isco Chemical Co., produce by the electrolytic process.

Hydrated Carbonate of Potash—Shipments to us from Germany on the dock or nearby steamers enable us to offer for immediate delivery. Prices for shipment from abroad have recently been reduced to $5.55 in car-lots, with a premium to cover costs on broken car of about 20c per 100 lbs. at port of entry.

Caustic Potash is in good demand at prices ranging from 7⅛c for carloads at the seaboard up to 8c for solid material.

Epsom Salts—extremely firm at $1.10 in car-lots. There is every reason to believe later deliveries will be at higher prices.

Bleaching Powder—another firm item, on which buyers have been contracting readily at the current price of $2 per 100 lbs., basis large drums, works.

112 YEARS GO

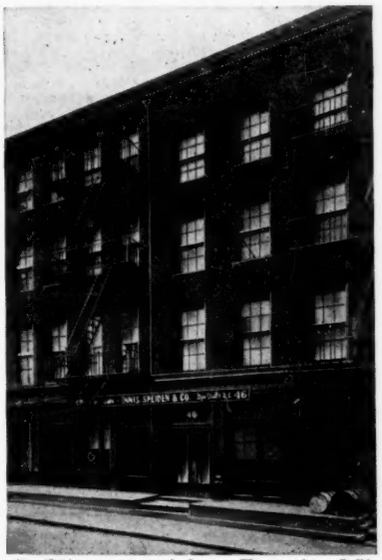
President James Madison in his annual message discussed British government regulations which prevented American vessels trading with Great Britain and her Colonies on an equal trade basis, and urged the establishment of a system of uniform weights and measurements.

There were discussions among our people and in our Government circles as to how to stop the "bootlegging" of slaves. Their import had been prohibited but there were many evasions of the law by both citizens and others operating on ships under foreign flags.

The Battle of Waterloo had been fought but a few months before and Napoleon was a prisoner at St. Helena.

In 1816 under the name of Gifford, Sherman and Innis this firm began its existence as manufacturers of dyewoods and dyestuffs at Ploughkeepsie, New York. The purpose was to meet the increased demand for dyeing material brought about by the greatly increased number of textile mills which sprang up during and after the War of 1812. Blockaded conditions at that time had produced a dearth of clothing which before that War had been really imported from England. The growth of the business made necessary a New York office and warehouse to handle importations of kindred articles such as Indigo, Cutch, Tumeric and Lac Dye from the East Indies, and such chemicals as was necessarily employed in the dyeing of cloth and yarn.

For this reason the Company was formed, and the purpose of its existence has remained unchanged for 112 years. That purpose is to serve as a reliable source of chemicals for the industries in the United States and Canada.



Buildings occupied as Executive Offices since 1906 when we moved from 181 Front St. Storage facilities for spot stocks are in the upper floors and cellars.

EDITORIALS

Mark Twain once said: "Any darned fool thinks he can run a newspaper and lots of them do." And while we are not 'going to press' (as the technical term is) as rival to "Bill" Haynes, Harry Schnell, or even to Tuttle, nevertheless we also want to get passes to all the shows. All Committees in charge of banquets, clam bakes, golf tournaments, dog fights, endurance contests, and chemical expositions; please note our address.

Quite seriously, we have a story of our own to tell. Which reminds us—did you hear the one about the three chemical salesmen who met next door to the Chemists' Club—excuse us: that's not *our* story either.

We shall not compete with our esteemed contemporaries in the field of chemical journalism. We shall have no paid circulation. We shall very strictly scrutinize all advertising that we accept, and we guarantee to all readers fair and honest dealing with all our advertisers.

Speaking of competition, most of us in the chemical field are used to it. We even come to like it. The first 112 years are the hardest! Competition quickens our wits and sharpens our pencils—especially when there's a contract due.

Now, if your pencil is sharp, here is a real opportunity to use it. This is but the first page of this entertaining, valuable publication. A post card addressed to Isco News Notes, 46 Cliff St., New York, with Your Name and Address, will bring you the rest. Do it now. You may regret it later, but at least it will have cost you nothing.

BUTYL PROPIONATE USE INCREASING

"From test tube to carload" in two years indicates the growth of this useful solvent, produced by the Wilbur White Chemical Co. at Owego, N. Y.

Economy in use compared with other solvents, and the results obtained in the finished job have contributed to its popularity. Standard specifications have been recently revised in accordance with the test methods of the American Society for Testing Materials. The Company produces on these specifications several grades for specific purposes and maintain a service department, which is at the disposal of solvent users.

Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Dec. 1927 68.6c

Aniline Oil — Movement is proceeding in heavy volume and many consumers have exceeded their monthly withdrawal quotas on new contracts. The increased motor car production, and the corresponding increase in rubber tire output is responsible for the firm price and heavy movement. All suppliers name 15¾c @ 16½c lb.

Antimony — Is quiet on spot as has been the prevailing condition for some time past. Sellers quote 11c lb. is fair sized lots, f.o.b. New York. This price compares with a high for the year of 15½c lb. and a low of 10½c lb. In 1926 a wide fluctuation marked the movement with 25c as the top and 9½c lb. as low.

Archil — Importers have not changed their positions and continue to name 12c lb. for double archil. The demand is not very lively but indications point to heavier business during the next few months, which will tend to strengthen prices. Sellers are asking 14c @ 15c lb. for triple and 16c @ 18c lb. for concentrated.

Barium Chloride — The course of this market has been very spotty over the month. Competition between domestic and imported factors has featured the activity and as a result the market is variously quoted at from $55.50 @ $58.00 ton as to quantity and seller. Domestic manufacturers continue to take a bulk of the business in spite of their openly quoted levels of $60.00 ton. At this writing the market is rather routine.

Bees Wax — The first week of the year has brought about a better demand for white wax but the yellow and crude grades fail to show any improvement. Prices are held at the same basis, white is offered at 56c @ 58c lb., yellow refined is named at 42c @ 43c lb. and crude 37c @ 38c lb.

Beta-Naphtol — Moving in a very quiet manner to consuming destinations and rigidly firm in price at 24c @ 26c lb. for less than carload quantities.

Benzene — The position of the market remains unaltered but spot sales are not very heavy. The sellers are still striving to maintain the schedule of 23c gal. for tank cars but are granting concessions as low as 21c gal. Contract business is also slow.

Bleaching Powder — With the contract price for 1928 unchanged from that of last year—$2.00 per 100 lbs. for carlots on contract, interest in this item has not been so keen. As with other alkali products the contract movement up to the end of the year was very satisfactory to sellers.

Blood — There were not many transactions during the past week, a few sales of

1914 July	1927 High	1927 Low	1927 Aver.		Current Market	1928 High	1928 Low
.47½	.58	.56	.57½	White, cases.....lb.	.56	.58	.58	.56
.....	.65	.65	.65	Benzaldehyde, technical, 945 lb drums wks.....lb.	.65	.70	.70	.65
.....	.23	.21	.22	Benzene, 90%, Commercial, 8000 gal tanks wks.....gal.	.21	.23	.23	.21
.....	.23	.21	.22½	CP, tanks works.....gal.	.21	.23	.23	.21
.....	.70	.70	.70	Benzidine Base, dry, 250 lb bbls.....lb.	.70	.74	.74	.70
.....	1.00	1.00	1.00	Benzoyl, Chloride, 500 lb drs..lb.	.....	1.00	1.00	1.00
.....	.....	.....	.....	Benzyl, Chloride, tech drs....lb.	.....	.25	.25	.25
.....	.24	.24	.24	Beta-Naphthol, 250 lb bbl wk.lb	.24	.26	.26	.24
.....	1.35	1.35	1.35	Naphthylamine, sublimed, 200 lb bbls.....lb.	.....	1.35	1.35	1.35
.....	.63	.63	.63	Tech, 200 lb bbls.....lb.	.63	.65	.65	.63
75.00	80.00	80.00	80.00	Blanc Fixe, 400 lb bbls wks...ton	80.00	90.00	90.00	80.00
1.20	2.25	2.00	2.23	Bleaching Powder, 300 lb drs c-1 wks contract....100 lb.	.....	2.25	2.25	2.25
.....	2.25	2.00	2.02	700 lb drs c-1 wks contract .....100 lb.	.....	2.00	2.00	2.00
3.00	3.75	4.75	4.47½	Blood, Dried, FOB, NY..Unit	.....	5.25	5.25	5.25
.....	.....	.....	.....	Chicago.....Unit	.....	5.00	5.00	5.00
.....	.....	.....	.....	S. American shipt.....Unit	.....	4.95	4.95	4.95
.27	.30	.28	.29	Blues, Bronze Chinese Milori Prussian Soluble.....lb.	.28	.30	.30	.28
28.50	38.00	29.00	29.04	Bone, raw, Chicago.....ton	29.00	30.00	30.00	29.00
.....	.06	.06	.06	Bone, Ash, 100 lb kegs.....lb.	.06	.07	.07	.06
.02½	.08½	.08½	.06	Black, 200 lb bbls.....lb.	.....	.08½	.08½	.08½
20.00	30.00	28.00	29.46	Meal, 3% & 50%, Imp....ton	32.00	37.00	37.00	32.00
.04	.04½	.04½	.04½	Borax, crys, 500 lb bbls.....lb.	.04½	.05	.05	.04½
.07	.11	.11	.11	Bordeaux, Mixture, 16% pwd.lb.	.11	.12	.12	.11
.03½	.08	.08	.08	Paste, bbls.....lb.	.08	.10	.10	.08
55.00	28.00	26.00	27.30	Brazilwood, sticks, shpmt.....lb.	26.00	28.00	28.00	26.00
1918	.60	.60	.60	Bronze, Aluminum, powd blk.lb.	.60	1.20	1.20	.60
.....	.55	.55	.55	Gold, bulk.....lb.	.55	1.25	1.25	.55
.....	1.60	1.42	1.52	Butyl, Acetate, normal drs lc-1 wks.....gal.	.....	1.60	1.60	1.60
.....	1.55	1.42	1.47½	Tank, drs wks.....gal.	.....	1.55	1.55	1.55
.....	1.00	1.00	1.00	Secondary, 50 gal drs.....gal.	1.00	1.05	1.05	1.00
.....	.70	.70	.70	Aldehyde, 50 gal drs wks...lb.	.....	.70	.70	.70
.....	.34	.34	.34	Propionate, drs.....lb.	.34	.36	.36	.34
.....	.60	.60	.60	Stearate, 50 gal drs.....lb.	.....	.60	.60	.60
.....	.57	.57	.57	Tartrate, drs.....lb.	.57	.60	.60	.57
1918	1.50	1.35	1.42	Cadmium, Sulfide, boxes.....lb.	1.35	2.00	2.00	1.35
				Calcium				
.....	3.50	3.50	3.50	Calcium, Acetate, 150 lb bags c-1.....100 lb.	.....	3.50	3.50	3.50
.....	.07½	.07½	.07½	Arsenate, 100 lb bbls c-1 wks.....lb.	.07½	.08	.08	.07½
.....	.05	.05	.05	Carbide, drs.....lb.	.05	.06	.06	.05
.....	1.00	1.00	1.00	Carbonate, tech, 100 lb bags c-1.....lb.	1.00	1.00	1.00	1.00
1918	27.00	27.00	27.00	Chloride, Flake, 375 lb drs c-1 wks.....ton	.....	27.00	27.00	27.00
12.00	21.00	21.00	21.00	Solid, 650 lb drs c-1 fob wks .....ton	21.00	23.00	23.00	21.00
.....	52.00	52.00	52.00	Nitrate, 220 lb bbls c-1 NY.ton	.....	52.00	52.00	52.00
.....	.09	.09	.09	Phosphate, tech, 450 lb bbls.lb.	.07	.08	.08	.07
.42½	.72	.62	.68	Camphor, American, refined 250 lb bbls.....lb.	.....	.62	.62	.62
.44½	.69	.60	.66	Japanese, ref, slabs, 100 lb cases.....lb.	.60	.61	.61	.60
.....	.....	.....	.....	Camwood, Bark, ground bbls.lb.	.....	.18	.18	.18
.22	.33	.33	.30½	Candelilla Wax, bags.....lb.	.27	.28	.28	.27
.....	.08	.08	.08	Carbon, Decolorizing, 40 lb bags c-1.....lb.	.08	.15	.15	.08
.....	.12	.12	.12	Black, 100-300 lb cases lc-1 NY.....lb.	.....	.12	.12	.12
.06½	.05½	.05½	.05½	Bisulfide, 500 lb drs lc-1 NY.....lb.	.05½	.06	.06	.05½
.....	.06	.06	.06	Dioxide, Liq, 20-25 lb cyl..lb.	.....	.06	.06	.06
.07½	.07	.07	.07	Tetrachloride, 1400 lb drs delivered.....lb.	.07	.07½	.07½	.07
.50	.50	.50	.50	Carnauba Wax, Flor, bags....lb.	.....	.50	.50	.50
.....	.90	.54	.60½	No. 1 Yellow, bags.....lb.	.59	.60	.60	.59
.32	.37	.24	.31	No. 2 N Country, bags.....lb.	.55	.56	.56	.55
.42½	.68	.48	.56	No. 2 Regular, bags.....lb.	.36	.38	.38	.36
.....	.18½	.15½	.17	Casein, Standard, ground.....lb.	.18½	.18½	.18½	.18½
.....	.34	.26	.32½	Celluloid, Scraps, Ivory cs....lb.	.26	.30	.30	.26
.....	.18	.18	.18	Shell, cases.....lb.	.18	.20	.20	.18
.....	.34	.26	.32½	Transparent, cases.....lb.	.30	.32	.32	.30
.....	1.40	1.40	1.40	Cellulose, Acetate, 50 lb kegs..lb.	.....	1.40	1.40	1.40
.....	.03	.03	.03	Chalk, dropped, 175 lb bbls...lb.	.03	.03½	.03½	.03
.03	.02½	.02½	.02½	Precip, heavy, 560 lb cks...lb.	.....	.04½	.04½	.04½
.04	.04½	.04½	.04½	Light, 250 lb casks.....lb.	.02½	.03½	.03½	.02½
.....	.18	.18	.18	Charcoal, Hardwood, lump, bulk wks.....lb.	.18	.19	.19	.18
1918	.06	.06	.06	Willow, powd, 100 lb bbl wks.....lb.	.06	.06½	.06½	.06
.....	.04	.04	.04	Wood, powd, 100 lb bbls....lb.	.04	.05	.05	.04
.....	.03	.02½	.03	Chestnut, clarified bbls wks,..lb.	.02½	.03	.03	.02½
.04	.02	.01½	.02	25% tks wks.....lb.	.....	.02	.02	.02
.....	.05½	.05½	.05½	Powd, 60%, 100 lb bgs wks.lb.	.....	.04 4/5	04 4/5	.04 4/5
.....	.06½	.06½	.06½	Powd, decolorized bgs wks..lb.	.05½	.06	.06	.05½
8.00	8.00	8.00	8.00	China Clay, lump, blk mines.ton	8.00	9.00	9.00	8.00
.....	.01½	.01½	.01½	Powdered, bbls.....lb.	.01½	.02	.02	.01½
.....	10.00	10.00	10.00	Pulverized, bbls wks.....ton	10.00	12.00	12.00	10.00
14.00	15.00	15.00	15.00	Imported, lump, bulk. ton	15.00	25.00	25.00	15.00
.....	.03	.03	.03	Powdered, bbls.....lb.	.03	.03½	.03½	.03
1918	.08	.08	.08	Chlorine, cyls lc-1 wks contract .....lb.	.08	.09	.09	.08
1917	.05½	.04	.04	Liq tank or multi-car lot cyls wks contract.....lb.	.....	.03½	.03½	.03½
1918	.07	.07	.07	Chlorobenzene, Mono, 100 lb. drs lc-1 wks.....lb.	.....	.07	.07	.07
.19	.20	.20	.20	Chloroform, tech, 1000 lb drs..lb.	.20	.22	.22	.20

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Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Dec. 1927 68.6c

South American were made at $4.95 unit but the New York and Chicago bases were very quiet. Prices of $5.00 unit were named in both places but remained without takers. If the activity among the stock feeding interests continues as heavily as it has during the Fall, it is probable that prices will advance when the usual heavy fertilizer demand appears later on in the month.

Bone Meal — Also dull and unchanged in price. The holders of domestic supplies continue to name $37.00 ton while the importers quote $32.00 @ $34.00 ton. The light demand is favorable toward the latter source.

Carnauba Wax — The consuming interests are not very active and prices are at a standstill with evidence of shading. No. 1 yellow is priced at 59c @ 60c lb., No. 2 regular can be purchased below 55c @ 56c lb. and No. 2 North Country is weak at 36c @ 38c lb.

Casein — This market has been holding up very well over the month and sellers are quoting 18 1/16c lb. in all quarters. With a larger stock expected on the South American market within the next six weeks a somewhat lower price here would not be surprising before the end of February.

Chestnut — Prices are very firm and the market is strongly inclined toward higher prices. Tanners are buying rather heavily, showing most interest in the clarified grade.

Chlorine — On the basis of the new schedule for 1928 which represents a reduction from the 1927 schedule most of the contract business for the current year has been placed at the new levels of 3 1/2c lb. in tank cars on contract; 5c lb. for carlots on contract. The less carlot price in cylinders ranges from 8c @ 9 1/4c lb.

Copper Sulfate — Based on the very firm position of the market over the past six weeks domestic manufacturers have advanced the price early this month to $5.05 @ $5.10 100 lbs. for Jan.-Feb. shipment and $5.15 100 lbs. for March shipment. Beyond this sellers are reluctant to book orders, because of the firm condition of the copper market. Also there has been a heavy demand for sulfate from the South American markets during the past two weeks and this condition is expected to continue for some weeks. The domestic outlet market is about as usual at this season, but the export demand has been so brisk that sellers are not seeking domestic outlets at the moment.

Dextrin — The markets for all grades are in a firm state, carload sales of canary are being made steadily at $3.77 100 lb., potato is quoted firmly at 8 1/2c lb. for both

1914 July	1927 High	1927 Low	1927 Aver.		Current Market	1928 High	1928 Low
.....	1.00	1.00	1.00	Chloropicrin, comml, cyls....lb.	1.00	1.35	1.35	1.00
.17	.27	.26	.26¾	Chrome, Green, CP.....lb.	.26	.29	.29	.26
.03½	.06½	.06½	.06½	Commercial.....lb.	.06½	.11	.11	.06½
.11	.17½	.16½	.16¾	Yellow.....lb.	.16½	.17	.17	.16½
.....	.05	.04½	.04¾	Chromium, Acetate, 8% Chrome bbls.....lb.	.04½	.05¾	.05¾	.04¾
1918	.05½	.05½	.05½	20° soln, 400 lb bbls.....lb.	.....	.05½	.05½	.05½
.....	.27	.27	.27	Fluoride, powd, 400 lb bbl..lb.	.27	.28	.28	.27
.....	.34½	.34½	.34½	Oxide, green, bbls.....lb.	.34½	.35½	.35½	.34½
.....	9.50	9.00	9.08	Coal tar, bbls.....bbl	9.00	9.50	9.50	9.00
1.00	2.10	2.10	2.10	Cobalt Oxide, black, bags....lb.	2.10	2.22	2.22	2.10
.48	.92	.77	.85¾	Cochineal, gray or black bag..lb.	.84	.87	.87	.84
.42	.92	.77	.87½	Teneriffe silver, bags.....lb.	.....	.86	.86	.86
13.75	13.57½	12.90	12.97	Copper, metal, electrol...100 lb.	12.90	13.00	13.00	12.90
.13½	.16¾	.16¼	.16½	Carbonate, 400 lb bbls.....lb.	.16½	.17¼	.17¼	.16¾
.....	.28	.28	.28	Chloride, 250 .lb bbls.....lb.	.....	.28	.28	.28
.....	.48	.48	.48	Cyanide, 100 lb drs.....lb.	.48	.50	.50	.48
.....	.16½	.16½	.16½	Oxide, red, 100 lb bbls.....lb.	.16½	.17	.17	.16½
.28	.18	.17	.18	Sub-acetate verdigris, 400 lb. bbls.....lb.	.18	.19	.19	.18
4.00	5.00	4.75	4.91¾	Sulfate, bbls c-l wks...100 lb.	5.05	5.10	5.10	5.05
13.00	17.00	13.00	13.33½	Copperas, crys & sugar bulk c-1 wks.....ton	13.00	14.00	14.00	13.00
.....	1.25	1.25	1.25	Sugar, 100 lb bbls.....100 lb.	1.25	1.35	1.35	1.25
.80	.40	.40	.40	Cotton, Soluble, wet, 100 lb. bbls.....lb.	.40	.42	.42	.40
.....	42.00	20.00	33.75	Cottonseed, S.E. bulk c-1...ton	.....	.....	.....	.....
.....	42.00	20.00	29.85	Meal S.E. bulk.....ton	.....	.....	.....	.....
26.50	35.00	21.50	30.38	7% Amm., bags mills...ton	36.00	37.00	37.00	36.00
.23¾	.27	.22	.24	Cream Tartar, USP, 300 lb. bbls.....lb.	.26	.27½	.27½	.26
.53	.40	.40	.40	Creosote, USP, 42 lb cbys.....lb.	.40	.42	.42	.40
1918	.20	.20	.20	Oil, Natural, 50 gal drs....gal.	.17	.19	.19	.17
1918	.25	.25	.25	10-15% tar acid.....gal.	.21	.23	.23	.21
				25-30% tar acid.....gal.				
1918	.17½	.17½	.17½	Cresol, USP, drums.....lb.	.25	.28	.28	.25
.07¾	.17	.16	.16½	Cudbear, English.....lb.	.17½	.20	.20	.17½
.05	.18½	.15	.18	Cutch, Rangoon, 100 lb bales.lb.	.16	.17	.17	.16
.....	.05	.05½	.05½	Borneo, Solid, 100 lb bale...lb.	.....	.18½	.18½	.18½
.....	1.82½	1.67½	1.78¾	Cyanamide, bulk c-1 wks Amm. unit	.06	.07	.07	.06
.....	3.92	3.77	3.84½	Dextrin, corn, canary....100 lb.	.....	1.67½	1.67½	1.67½
3.00	3.87	3.72	3.78¼	White, 140 lb bgs c-1....100 lb.	.....	3.77	3.77	3.77
.05½	.08½	.08½	.08½	Potato, yellow, 220 lb bgs...lb.	.....	3.72	3.72	3.72
.05½	.08½	.08½	.08½	White, 220 lb bags 1c-1....lb.	.....	.08½	.08½	.08½
.....	.08¼	.08	.08	Tapioca, 200 lb bags 1c-1...lb.	.....	.08½	.08½	.08½
.....	3.80	3.80	3.80	Diaminophenol, 100 lb kegs...lb.	.08	.08¼	.08¼	.08
.....	2.95	2.85	2.93½	Diamylphthalate, drs wks...gal.	.....	3.80	3.80	3.80
.....	3.25	3.25	3.25	Dianisidine, 100 lb kegs.....lb.	2.85	2.90	2.90	2.85
.....	.31½	.29½	.30½	Dibutylphthalate, wks.....lb.	.....	2.80	2.80	2.80
.....	.55	.55	.55	Bibutyltartrate, 50 gal drs....lb.	.29½	.31½	.31½	.29½
.....	.23	.23	.23	Dichloromethane, drs wks....lb.	.55	.65	.65	.55
.....	2.15	2.15	2.15	Diethylamine, 400 lb drs.....lb.	.23	.25	.25	.23
.....	1.85	1.85	1.85	Diethyl carbonate, drs.....gal.	.....	2.15	2.15	2.15
1918	.55	.55	.55	Diethylaniline, 850 lb drs....lb.	1.85	2.00	2.00	1.85
.....	.20	.20	.20	Diethyleneglycol, drs.....lb.	.55	.60	.60	.55
.....	.64	.64	.64	Diethylorthotoluidin, drs.....lb.	.....	.....	.....	.....
.....	.25	.25	.25	Diethyl phthalate, 1000 lb drums.....lb.	.64	.67	.67	.64
.....	.30	.20	.25	Diethylsulfate, technical, 50 gal drums.....lb.	.24	.26	.26	.24
.....	2.60	2.60	2.60	Dimethylamine, 400 lb drs....lb.	.30	.35	.35	.30
1918	.32	.30	.31½	Dimethylaniline, 340 lb drs...lb.	.....	2.62	2.62	2.62
.....	.45	.45	.45	Dimethylsulfate, 100 lb drs...lb.	.30	.32	.32	.30
1918	.15½	.15	.15½	Dinitrobenzene, 400 lb bbls...lb.	.45	.50	.50	.45
.....	.18	.18	.18	Dinitrochlorine, 300 lb bbl....lb.	.15½	.16½	.16½	.15½
1918	.15	.15	.15	Dinitrochlorobenzene, 400 lb. bbls.....lb.	.18	.19	.19	.18
1917	.32	.32	.32	Dinitronaphthalene, 350 lb bbls .....lb.	.15	.16	.16	.15
1918	.31	.31	.31	Dinitrophenol, 350 lb bbls....lb.	.32	.34	.34	.32
1918	.18	.15	.17¾	Dinitrotoluene, 300 lb bbls....lb.	.31	.32	.32	.31
.....	1.05	.85	.88	Diorthotolyguanidine, 275 lb bbls wks.....lb.	.18	.19	.19	.18
1918	.48	.45	.45¼	Diphenylamine.....lb.	.85	.90	.90	.85
.....	.....	.....	.....	Diphenylguanidine, 100 lb bbl.lb.	.45	.47	.47	.45
.....	.26	.26	.26	Dip Oil, 25%, drums.....lb.	.68	.72	.72	.68
45.00	49.00	41.00	45.25	Divi Divi pods, bgs shipmt....lb.	.26	.30	.30	.26
.02½	.04	.04	.04	Extract.....lb.	.....	Nom.	Nom.	Nom.
1918	.84	.72	.67¾	Egg Yolk, 200 lb cases.....lb.	.....	Nom.	Nom.	Nom.
1.00	2.00	1.75	1.87½	Epsom Salt, tech, 300 lb bbls c-1 NY.....100 lb.	.76	.77	.77	.76
.....	.13¾	.13¾	.13¾	Ester Gums, dark, 200 lb bbl..lb.	.....	1.75	1.75	1.75
.....	.14	.14	.14	Light, 280 lb bbls.....lb.	.13¾	.14	.14	.13¾
.22	.45	.37	.43	Esther, USP, 1880, 50 lb drs..lb.	.14	.14¼	.14¼	.14
.....	.90	.90	.90	Ethyl Acetate, 85% Ester, 110 gal drs.....gal.	.37	.38	.38	.37
.....	1.10	1.03	1.08	99%, gal drums.....gal.	.....	.80	.80	.80
.....	1.05	1.05	1.05	Benzylaniline, 300 lb drs...lb.	.....	1.10	1.10	1.10
.....	.50	.50	.50	Bromide, tech, drums.....lb.	1.05	1.11	1.11	1.05
.....	.22	.22	.22	Chloride, 200 lb. drums....lb.	.....	.70	.70	.70
.....	3.50	3.50	3.50	Lactate, drums works.....gal.	.....	.22	.22	.22
1918	.30	.30	.30	Methyl Ketone, 50 gal drs..lb.	.....	3.50	3.50	3.50
.....	.45	.45	.45	Oxalate, drums works.....lb.	.....	.30	.30	.30
.....	.70	.70	.70	Ethylene Bromide, 600 lb dr..lb.	.45	.55	.55	.45
.....	.75	.75	.75	Chlorhydrin, anhydrous, 50 gal drums.....lb.	.....	.70	.70	.70
.....	.15	.11	.11¼	Dichloride, 50 gal drums...lb.	.75	.85	.85	.75
.....	.30	.30	.30	Glycol, 50 gal drs wks.....lb.	.....	.11	.11	.11
.....	.30	.30	.30	Ethyl Ether, 50 gal drs 1c-1 wks.....gal.	.30	.40	.40	.30
1918	.62	.62	.62	Ethylidenaniline.....lb.	.....	1.79	1.79	1.79
8.00	20.00	20.00	20.00	Feldspar, bulk.....ton	.62	.65	.65	.62
.....	15.00	15.00	15.00	Powdered, bulk works.....ton	20.00	25.00	25.00	20.00
.....	.07½	.07½	.07½	Ferric Chloride, tech, crystals 475 lb bbls.....lb.	15.00	21.00	21.00	15.00
.....	.....	.....	.....	Ferrous Chloride, tech, crystals 475 lb bbls.....lb.	..07½	.09	.09	.07½
					.05	.06	.06	.05

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Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Dec. 1927 68.6c

white and yellow but reports from Amsterdam indicate a slight weakness there owing to the heavy amount of supplies offered. Corn dextrin is reflecting in the current strength of the grain market and prices are firm at $3.72 100 lbs in carloads.

Dianisidine — The present situation is similar to that witnessed in December, a scattering of spot orders and very little contract business. Contract closings were of normal size and entered at the basis or $2.70 lb.

Dimethylaniline — The market appears in a sound condition and while the new year has not been featured with the due demand, prices are firm at 30c @ 32c lb.

Divi-Divi — Supplies are still unavailable for both pods and the extract. There is no news of relief emanating from the primary market.

Ethyl Acetate — Competition for business has been keen in the 85 per cent. grade and leading factors reduced the price just after the first of the year to 80c gal. This condition is described as temporary, but the market is easy at the present level and business is rather limited.

Fish Scrap — No sales of this material have been heard of for the past three weeks. Fishing has been suspended and will not resume until the 15th of May. Contracts are being closed with the primary suppliers for Summer delivery, on a "when and if made," basis.

Flavine — The movement of both orange and lemon is confined to narrow limits but improvement is indicated. The high prices of both of these commodities have not been very attractive to consumers but the underlying strength has been proven by its consistency and better movement is expected.

Glauber Salts — While makers contend that the market in this territory is being held at $1.00 100 lbs. in bags, conditions in New England are comparatively bad. With competition more keen there from imported lots and one domestic maker reported as cutting well under the open market, offers are heard there at under 75c 100 lbs. for technical.

Glue — Prices have strengthened but no actual change has taken place. A decided improvement in demand is responsible for the present soundness.

Glycerin — From a position of general easiness throughout December, the market has sagged to a badly neglected state within the past ten days.

Dynamite is offered freely at 15c lb. without any particular interest and this price may possibly be shaded. Crude is in plentiful supply in the producers hands with saponification nominally held 10c @

1914 July	1927 High	1927 Low	1927 Aver.		Current Market	1928 High	1928 Low
2.80	5.60	4.15	4.69	Fish Scrap, dried, wks.....unit	.....	Nom.	Nom.	Nom.
				Acid, Bulk 7 & 3½% delivered				
2.50	3.50	4.24	3.56½	Norfolk & Balt. basis...unit	.....	Nom.	Nom.	Nom.
.08	.14	.12¾	.13¾	Flake, White, bbls.....lb.	.....	Nom.	Nom.	Nom.
.40	1.10	.90	1.01¾	Flavine, lemon, 55 lb cases...lb.	1.10	1.15	1.15	1.10
.40	1.10	.85	.89	Orange, 70 lb cases.....lb.	1.10	1.15	1.15	1.10
.....				Flavseed.....lb.				
.....	25.00	25.00	25.00	Fluorspar, 95%, 220 lb bags...lb.	.....	.....	.....	.....
.....	.....	.....	.....	Ex-dock.....ton	.....	.....	.....	.....
				Formaldehyde, aniline, 100 lb.	.....	25.00	25.00	25.00
.....	.39	.39	.39	drums.....lb.	.39	.42	.42	.39
.08½	.11¼	.08¾	.10	USP, 400 lb bbls 1c-1 wks...lb.	.08¾	.09	.09	.08¾
.....	.02½	.02½	.02½	Fossil Flour.....lb.	.02½	.04	.04	.02½
.....	15.00	15.00	15.00	Fullers Earth, bulk, mines...ton	15.00	20.00	20.00	15.00
.....	25.00	25.00	25.00	Imp, powd c-1 bags.....ton	25.00	30.00	30.00	25.00
.....	.17½	.17½	.17½	Furfural, 500 lb drums.....lb.	.17½	.19¼	.19¼	.17½
1.10	1.69	1.35	1.59	Fusel Oil, 10% impurities....gal.	.....	1.35	1.35	1.35
.01½	.04	.04	.04	Fustic, chips.....lb.	.04	.05	.05	.04
.....	.20	.20	.20	Crystals, 100 lb boxes.....lb.	.20	.22	.22	.20
.06	.09	.09	.09	Liquid, 50°, 600 lb bbls....lb.	.09	.10	.10	.09
.08	.20	.20	.20	Solid, 50 lb boxes.....lb.	.20	.23	.23	.20
12.00	30.00	30.00	30.00	Sticks.....ton	30.00	32.00	32.00	30.00
1918	.50	.50	.50	G Salt paste, 360 lb bbls.....lb.	.50	.52	.52	.50
.12	.20	.20	.20	Gall Extract.....lb.	.20	.21	.21	.20
.04½	.08	.06	.....	Gambier, common 200 lb cs...lb.	.08	.09	.09	.08
1917	.12	.12	.12	25% liquid, 450 lb bbls....lb.	.12	.14	.14	.12
.05¾	.23	.11	.17	Singapore cubes, 150 lb bg..lb.	.11	.12	.12	.11
.....	.45	.30	.43¾	Gelatin, tech, 100 lb cases....lb.	.45	.50	.50	.45
.....	3.14	3.14	3.14	Bags, c-1 NY.....100 lb.	3.14	3.24	3.24	3.14
				Glauber's Salt, tech, 250 lb bags				
.60	1.05	1.05	1.05	c-1 wks.....100 lb.	1.00	1.05	1.05	1.00
				Glucose (grape sugar) dry 70-				
.....	3.24	3.24	3.24	80° bags c-1 NY....100 lb.	3.24	3.34	3.34	3.24
				Tanner's Special, 100 lb bags				
.....	3.14	3.14	3.14	.....100 lb.	.....	3.14	3.14	3.14
.12	.20	.20	.20	Glue, medium white, bbls....lb.	.20	.24	.24	.20
.18	.22	.22	.22	Pure white, bbls.....lb.	.22	.26	.26	.22
.19½	.29	.22	.24	Glycerin, CP, 550 lb drs.....lb.	.18½	.19	.19	.18½
.19¼	.25½	.17	.21½	Dynamite, 100 lb drs.....lb.	.....	.15	.15	.15
.....	.....	.....	.....	Saponification, tanks.....lb.	.10	.10½	.10½	.10
.....	.....	.....	.....	Soap Lye, tanks.....lb.	.09	.09¼	.09¼	.09
.....	15.00	15.00	15.00	Graphite, crude, 220 lb bgs..ton	15.00	35.00	35.00	15.00
.....	.05	.05	.05	Flake, 500 lb bbls.....lb.	.06	.09	.09	.06
				Gums				
				Gum Accroides, Red, coarse and				
.....	.03¾	.03¾	.03¾	fine 140-150 lb bags....lb.	.03¾	.04½	.04½	.03¾
.....	.06	.06	.06	Powd, 150 lb bags.....lb.	.06	.06½	.06½	.06
.....	.18	.18	.18	Yellow, 150-200 lb bags..lb.	.18	.20	.20	.18
				Animi (Zanzibar) bean & pea				
.25	.40	.35	.39	250 lb cases.....lb.	.35	.40	.40	.35
.....	.60	.50	.57½	Glassy, 250 lb cases.....lb.	.50	.55	.55	.50
				Asphaltum ,Barbadoes				
.05	.09	.09	.09	(Manjak) 200 lb bags..lb.	.09	.12	.12	.09
.....	.10½	.07	.10	Batavia Dust, 160 lb bags..lb.	.10½	.11	.11	.10½
.....	.18½	.17½	.18½	E Seeds, 136 lb cases....lb.	.17	.17½	.17½	.17
				F Splinters, 136 lb cases and				
.....	.14	.09	.13	bags.....lb.	.14	.14½	.14½	.14
.....	.34	.33½	.34	Singapore, No. 1, 224 lb caseslb.				
.14	.22½	.21	.22¼	No. 2, 224 lb cases.....lb.	.30	.30½	.30½	.30
.08	.14	.11	.12	No. 3, 180 lb bags.....lb.	.20	.21	.21	.20
				Benzoin Sumatra, technical, 120				
.34	.35	.30	.30	lb cases.....lb.	.33	.35	.35	.33
				Copal Congo, 112 lb bags, clean				
.....	.14	.12	.13	opaque.....lb.	.14	.15	.15	.14
.12	.08¾	.08¾	.08¾	Dark, amber.....lb.	.08¾	.09	.09	.08¾
.18	.12½	.12½	.12½	Light, amber.....lb.	.12½	.14	.14	.12½
.25	.35	.35	.35	Water white.....lb.	.35	.36	.36	.35
				Manila, 180-190 lb baskets				
.15	.16	.16	.16	Loba A.....lb.	.16	.16½	.16½	.16
.....	.15	.15	.15	Loba B.....lb.	.15	.15½	.15½	.15
.....	.14½	.13	.13¾	Loba C.....lb.	.13	.13½	.13½	.13
.....	.16	.16	.16	Pale bold, 224 lb cs.....lb.	.16	.18	.18	.16
.08½	.14	.12	.13	Pale nubs.....lb.	.12	.12½	.12½	.12
.....	.07½	.07½	.07½	East Indies chips, 180lb bagslb.	.07½	.08	.08	.07½
.....	.....	.....	.....	Pale bold, 180 lb bags..lb.	.17	.17½	.17½	.17
.....	.17	.17	.17	224 lb cases.....lb.	.08½	.09	.09	.08½
.....	.....	.....	.....	Pontianak, 24 lb cases.....lb.				
.13½	.29	.25	.26½	Pale bold gen No. 1.....lb.	.25	.25½	.25½	.25
.07	.19	.13	.15½	Pale gen chips spot.....lb.	.13	.14½	.14½	.13
				Damar Batavia standard 136,	.23	.23½	.23½	.23
.17½	.26½	.26½	.25	lb cases.....lb.				
.15	.15	.15	.15	Egyptian, 200 lb cases.....lb.	.15	.17	.17	.15
.....	.14	.13	.13¾	Elemi, No. 1, 80-85 lb cs..lb.	.13½	.16	.16	.13½
.....	.13	.12	.12¾	No. 2, 80-85 lb cases.....lb.	.13	.13½	.13½	.13
.....	.13	.11	.11	No. 3, 80-85 lb cases.....lb.	.12	.13	.13	.12
				Gilsonite Selects, 150 lb bags				
36.00	55.00	55.00	55.00	.....ton	55.00	60.00	60.00	55.00
				Kauri, 224-226 lb cases No. 1				
.50	.67½	.57	.63½	.....lb.	.50	.57	.57	.50
.32	.44½	.38	.41	No. 2 fair pale.....lb.	.35	.38	.38	.35
				Brown Chips, 224-226 lb				
.07½	.14½	.10	.12	cases.....lb.	.10	.12	.12	.10
.....	.42	.38	.40	Bush Chips, 224-226 lb	.33	.40	.40	.33
				cases.....lb.				
				Pale Chips, 224-226 lb cases				
.....	.31½	.24½	.25	.....lb.	.24½	.26	.26	.24½
				Sandarac, prime quality, 200				
.19	.27	.25	.25	lb bags & 300 lb casks...lb.	.26	.27	.27	.26
1917	.12	.12	.12	Hematine crystals, 400 lb bbls.lb.	.17	.20	.20	.17
1917	.09	.09	.09	Paste, 500 bbls.....lb.	.....	.11	.11	.11
.02¾	.03½	.03½	.03½	Hemlock 25%, 600 lb bbls wks lb.	.03½	.03¾	.03¾	.03½
.....	16.00	16.00	16.00	Bark.....ton	.....	16.00	16.00	16.00
.....	.60	.45	.56	Hexalene, 50 gal drs wks.....lb.	.....	.60	.60	.60
.....	.80	.62	.72	Hexamethylenetetramine, drs.lb.	.62	.65	.65	.62
2.60	3.35	2.75	3.08	Hoof Meal, fob Chicago.....unit	.....	.....	.....	.....

Pure Phthalic Anhydride

Phthalic Anhydride of the highest purity has been produced by us in commercial quantity for for over 9 years and this pure Phthalic Anhydride is well-known to the trade as SELDEN BRAND. Its form is the natural long needle crystal which dissolves and melts much more rapidly than in any other form.

We pack this material in new slack barrels containing 150-lb. net weight of Phthalic Anhydride and these packages are so constructed that their use for re-shipment is a well established fact among our customers.

Our service on Phthalic Anhydride is unexcelled and we are in position to make prompt shipment in carload lots.

Your inquiries will have our prompt attention and we will be pleased to furnish quotations and samples at your request.

THE SELDEN COMPANY

THE NAME IS IMPORTANT

Pittsburgh, Pa., U. S. A.

Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Dec. 1927 68.6c

10¼c lb. and lye 9c @ 9¼c lb. C. P. is quiet at 19c @ 19½c lb.

Mangrove Bark — Prices are still lingering around $40.00 @ $42.00 ton but there is very little demand. Current movement is confined to completion of old orders and new business is absent.

Mercury — Following a month of comparative quietness the market has shown an easier trend during the past two weeks. Last week offers were made on this market at $126.00 flask. This reduction was based on conditions abroad, where prices have been reduced 10 shillings per flask in London. Though sales during a good part of December were up to sellers expectations, at present the market is rather routine, with buyers taking only their immediate needs as they anticipate some reduction from what they consider an abnormally high market.

Meta-Nirto-Para-Toluidine — There is very little spot business being transacted, most of the consumers having taken advantage of the new contract arrangement at $1.70 lb.

Methanol — Opinions among the producers conflict as to the exact status of the market during December. One leading producer has stoutly maintained that large volumes of business has been done at practically schedule levels, while others admit to knowing of sales in good sized lots at 48c gal. The general consensus seems to be one of agreement that the market is none too strong with considerable competition for the average volume of business.

Methyl Acetone — A reduction in the openly quoted price was made by producers immediately following the first of the year. Offers are now made at 80c gal. This reduction was brought about by competition which has been in evidence during the past month and for some time previous. Sellers contend that the market is basically sound and predict an early recovery.

Myrobalans — No price movement has been seen and business is merely routine. J1s are quoted at $48.00 ton and J2s and R2s are placed at $38.00 ton.

Nickel Salts — Sellers have been doing a fairly brisk contract business on single salts during the past four weeks at 8¼c lb. on contract. Spot business is quoted fractionally higher than this level. The market is very steady at these levels as sellers are having difficulty in locating sufficient raw material supplies to care for their customers requirements.

Nitrogenous Material — The spot market has advanced and holders are now asking $3.50 unit. There has been a better consuming demand and stocks are not very large. Many of the tankage

1914 July	1927 High	1927 Low	1927 Aver.		Current Market	1928 High	1928 Low
.....	3.90	3.00	3.57	South Amer. to arrive....unit	.....	.....	.....
				Hydrogen Peroxide, 100 vol, 140			
.....	.30	.22	.24	lb cbys.....lb.	.24	.26	.26	.24
1917	.12	.12	.12	Hpyernic, 51°, 600 lb bbls....lb.	.12	.15	.15	.12
.58	1.28	1.20	1.27	Indigo Madras, bbls.....lb.	1.28	1.30	1.30	1.28
.....	.14	.14	.14	20% paste, drums.....lb.	.14	.15	.15	.14
.....	.07½	.07½	.07½	Solid, powder.....lb.	.07½	.08	.08	.07½
				Iron Chloride, see Ferric or Ferrous			
.04	.09	.09	.09	Iron Nitrate, kegs.....lb.	.09	.10	.10	.09
1.12½	2.50	2.50	2.50	Coml, bbls.....100 lb.	2.50	3.25	3.25	2.50
.....	.10	.10	.10	Oxide, English.....lb.	.10	.12	.12	.10
.....	.02½	.02½	.02½	Red, Spanish.....lb.	.02½	.03½	.03½	.02½
.....	.85	.85	.85	Isopropyl Acetate, 50 gal drs.gal.	.85	.90	.90	.85
.11½	.29	.17	.19	Japan Wax, 224 lb cases.....lb.	.18½	.19	.19	.18½
.....	60.00	60.00	60.00	Kieselguhr, 95 lb bgs NY....ton	60.00	70.00	70.00	60.00
				Larch Extract, 25%, 600 lb bbls			
.....	.03¾	.03¾	.03¾	wks.....lb.	.03¾	.04	.04	.03¾
.....	.08	.08	.08	Powd, 100 lb bags wks.....lb.	.08	.09	.09	.08
.....	14.00	13.00	13.33	Lead Acetate, bbls wks...100 lb.				
				White crystals, 500 lb bbls				
9.12½	14.00	13.00	13.33	wks.....100 lb.	13.00	13.50	13.50	13.00
.04¾	.15½	.13½	.13	Arsenate, bbls 1c-1 wks.....lb.	.13½	.14	.14	.13½
3.90	7.80	6.20	6.78	Metal, c-1 NY.....100 lb.	.....	6.25	6.25	6.25
.07½	.14	.14	.14	Nitrate, 500 lb bbls wks....lb.	.....	.14	.14	.14
.17½	.17½	.17½	.17½	Oleate, bbls.....lb.	.17½	.18	.18	.17½
.....	.10¼	.08¾	.09	Oxide Litharge, 500 lb bbls..lb.	.....	.08¾	.08¾	.08¾
.05½	.11½	.09¾	.10	Red, 500 lb bbls wks.....lb.	.....	.09¾	.09¾	.09¾
.05½	.09¾	.09	.09½	White, 500 lb bbls wks...lb.	.....	.09	.09	.09
.05	.09	.08½	.08½	Sulfate, 500 lb bbls wk...lb.	.....	.08½	.08½	.08½
.....	4.50	4.50	4.50	Lime, ground stone bags....ton	.....	4.50	4.50	4.50
.....	1.05	1.05	1.05	Live, 325 lb bbls wks..100 lb.	.....	1.05	1.05	1.05
				Lime Salts, see Calcium Salts			
1918	.15	.15	.15	Lime-Sulfur soln bbls.....gal.	.09	.10	.10	.09
				Lithopone, 400 lb bbls 1c-1 wks				
.03¾	.06½	.06½	.06½	.....lb.	.....	.06½	.06½	.06½
.05	.08½	.08½	.08½	Logwood, 51°, 600 lb bbls.....lb.	.08½	.08½	.08½	.08½
.01¼	.03	.03	.03	Chips, 150 lb bags.....lb.	.03	.03½	.03½	.03
.06	.12	.12	.12	Solid, 50 lb boxes.....lb.	.....	.12½	.12½	.12½
15.00	26.00	26.00	26.00	Sticks.....ton	26.00	27.00	27.00	26.00
.....	.07½	.07½	.07½	Lower grades.....lb.	.07½	.08	.08	.07½
.12	.30	.30	.30	Madder, Dutch.....lb.	.....	.30	.30	.30
30.00	48.00	48.00	48.00	Magnesite, calc, 500 lb bbl..ton	48.00	50.00	50.00	48.00
				Magnesium				
				Magnesium Carb, tech, 70 lb				
1918	.06½	.06	.06	bags NY.....lb.	.06	.06½	.06½	.06
				Chloride flake, 375 lb drs c-1				
.....	37.00	37.00	37.00	wks.....ton	.....	37.00	37.00	37.00
.....	33.00	33.00	33.00	Imported shipment...ton	.....	33.00	33.00	33.00
.....	31.00	31.00	31.00	Fused, imp, 900 lb bbls NY ton	.....	31.00	31.00	31.00
				Fluosilicate, crys, 400 lb bbls				
.....	.10	.10	.10	wks.....lb.	.10	.10½	.10½	.10
				Oxide, USP, light, 100 lb bbls				
.....	.42	.42	.42	.....lb.	.....	.42	.42	.42
.....	.50	.50	.50	Heavy, 250 lb bbls.....lb.	.....	.50	.50	.50
.....	.12½	.09¾	.11½	Silicofluoride, bbls.....lb.	.09¾	.10½	.10½	.09¾
.....	.23	.23	.23	Stearate, bbls.....lb.	.23	.25	.25	.23
				Manganese Borate, 30%, 200 lb				
.20	.24	.24	.24	bbls.....lb.	.....	.24	.24	.24
.06	.08	.08	.08	Chloride, 600 lb casks.....lb.	.08	.08½	.08½	.08
.....	.05	.04½	.04½	Dioxide, tech (peroxide) drs.lb.				
				Ore, powdered or granular	.48	.50	.50	.48
.....	.03	.03	.03	75-80%, bbls.....lb.	.03	.03½	.03½	.03
.....	.04	.04	.04	80-85%, bbls.....lb.	.04	.04½	.04½	.04
.....	.05	.05	.05	85-88%, bbls.....lb.	.05	.05½	.05½	.05
.....	.07	.07	.07	Sulfate, 550 lb drs NY.....lb.	.07	.07½	.07½	.07
.....	.03½	.03½	.03½	Mangrove 55%, 400 lb bbls...lb.	.03½	Nom.	Nom.	.03½
.....	39.00	34.00	37.54	Bark, African.....ton	40.00	42.00	42.00	40.00
8.00	10.00	10.00	10.00	Marble Flour, bulk.....ton	10.00	12.00	12.00	10.00
1916	129.00	99.00	119.09	Mercury metal.....75 lb flask	126.00	127.50	127.50	126.00
1918	.72	.72	.72	Meta-nitro-aniline.....lb.	.72	.74	.74	.72
				Meta-nitro-para-toluidine 200 lb				
1918	1.70	1.70	1.70	bbls.....lb.	1.70	1.80	1.80	1.70
				Meta-phenylene-diamine 300 lb				
1918	.90	.90	.90	bbls.....lb.	.90	.94	.94	.90
				Meta-toluene-diamine, 300 lb				
1918	.72	.72	.72	bbls.....lb.	.72	.74	.74	.72
.45	.....	.....	.....	Methanol, (Wood Alcohol), drs				
.45	.80	.55	.69	95%.....gal.	.....	.55	.55	.55
.50	.87	.57	.74½	97%, drums 1c-1.....gal.	.....	.57	.57	.57
.....	.....	.....	.....	Pure, drums 1c-1.....gal.	.....	.58	.58	.58
.....	.....	.....	.....	Synthetic, drums 1c-1.....gal.	.....	.58	.58	.58
.....	.80	.75	.78	U. S. denat. grd. tanks...gal.	.....	.75	.75	.75
.....	.95	.95	.95	Methyl Acetate, drums.....gal.	.....	.95	.95	.95
.....	.88	.75	.66	Acetone, 100 gal drums...gal.	.....	.80	.80	.80
.....	1.00	.85	.92¾	Anthraquinone, kegs.....lb.	.85	.95	.95	.85
.....	.55	.55	.55	Chloride, 90 lb cyl.....gal.	.55	.60	.60	.55
.....	.03½	.03½	.03½	Mica, dry grd. bags wks.....lb.	65.00	80.00	80.00	65.00
.....	.05¼	.05¼	.05¼	Wet, ground, bags wks.....lb.	110.00	115.00	115.00	110.00
.....	3.00	3.00	3.00	Michler's Ketone, kegs.....lb.	.10	.10½	.10½	.10
				Monochlorobenzene, drums see,				
.....	.70	.70	.70	Chlorobenzene, mono.....lb.				
				Monoethylorthotoluidin, drs..lb.	.70	.75	.75	.70
1918	1.05	1.05	1.05	Monomethylaniline, 900 lb dr				
				.....lb.	.....	1.05	1.05	1.05
				Monomethylparaminosulfate 100				
.....	3.95	3.95	3.95	lb drums.....lb.	3.95	4.20	4.20	3.95
.06½	.06½	.06½	.06½	Montan Wax, crude, bags....lb.	.06½	.07	.07	.06½
.....	.04	.04	.04	Myrobalans 25%, liq bbls.....lb.	.04¼	.04½	.04½	.04¼
.....	.08	.08	.08	50% Solid, 50 lb boxes.....lb.	.08	.08½	.08½	.08
27.00	43.50	41.00	42.00	J 1 bags.....ton	.....	48.00	48.00	48.00
27.00	37.00	23.50	35.24	J 2 bags.....ton	.....	38.00	38.00	38.00
27.00	37.00	30.00	36.62	R 2 bags.....ton	.....	38.00	38.00	38.00
				Naphtha, v. m. & p. (deodorized)				
.10	.21	.18	.19½	bbls.....gal.	.....	.18	.18	.18

ALTON SERVICE

SODIUM SULPHIDE

(30°-32° CRYSTALS)

PACKED in Gum-Wood
Barrels Paraffine Lined

You owe it to the Quality and Reputation of your Products to maintain the highest standard.

Don't Let This Happen to You

Scene

Purchasing Agent's Office.

Cast

Purchasing Agent, John Brown.
Superintendent, Any Plant Superintendent.
Material, Any A. B. P. Products.

Superintendent: "John, I have been down to the plant every night this week---nothing but trouble, trouble, trouble. There must be something wrong with the material we are getting from Alton Barium."

Purchasing Agent: "Alton Barium! We changed our source of supply because they were too high on this year's contract."

Superintendent: "Man we can't use this other material even though it is cheaper!"

Purchasing Agent: "Miss Jones wire Alton Barium to get a car of material on the way at once---Rush."

Alton Barium Products Co., Alton, Ill.

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BARIUM CHLORIDE
BARIUM SULPHIDE
(BLACK ASH)

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Every Step in Process is Tested

SODIUM SULPHIDE
30°-32° CRYSTALS
IRON OXIDE
(VENETIAN RED)
BRICK SCUM PREVENTOR

Samples sent on Request

ALTON PRODUCTS

Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Dec. 1927 68.6c

buyers are using this product in preference to paying the high prices of the former.

Nitro-Benzene — Moving well on contract, particularly through the West. Prices are holding at 10¼c @ 10½c lb. f.o.b. works and a heavier demand is expected within the next few weeks. December business was poor and this, coupled with the completion of inventory taking should cause a future acceleration in movement.

Ortho-Toluidine — Contract sales are well up to normal and producers are not expected to alter their present views on prices figures.

Para-Dichlorbenzene — There is both a fair jobbing and consuming demand and prices are easily maintained at 17c @ 20c lb. A lively call from the South is also a feature of the market.

Para-Nitroaniline — Remains in an unsettled state but nothing lower than 47c lb. has been openly quoted. The demand has eased off but there are not visible signs that either weaken or strengthen the market.

Para-Phenelenediamine — Being held by sellers at $1.15 @ $1.20 lb. but its movement is inconsequential. The past season was a poor one for fur dyes and its future is uncertain until the resumption of activities about mid-February.

Paraffin — The call for refined paraffin has been very poor lately and weakness is evident in the prices. The reduction made in November by the Pennsylvania refiners has not reflected in a visible change here but tends to soften the market.

Paris Green — The 1928 prices will not be released until mid-February and meanwhile business is very routine.

Rosin — The volume of receipts at primary markets has been diminishing for the past ten days and this has had a firming tendency on the position in all quarters. During the month of December the market was quite soft and routine, but since the first of the year the markets in the South have been strengthening. Factors in the South have a more optimistic view of the situation since the market has braced and further strength is looked for. Current spot quotations are: B, $9,60; D, $9.65; E, $9.70; F, $9.95; G, H, $10.10; I, $10.20; K, $10.15; M, $10.25; N, $11.00; WG, $11.65; WW, $12.65.

Shellac — Prices for all grades held over the week with the exception of bone dry T. N. was quoted at 54c @ 55c lb. but found very few takers and with a firm order, 53c lb. could be obtained. Garnet was in a similar position and failed to prove attractive to buyers. Superfine

1914 July	1927 High	1927 Low	1927 Aver.		Current Market	1928 High	1928 Low
.02⅜	.06	.05½	.05¾	Naphthalene balls, 250 lb bbls wks.....lb.	.....	.06	.06	.06
.....	.04½	.04½	.04½	Crushed, chipped bgs wks..lb.	.....	.04½	.04½	.04½
.02⅜	.05	.04½	.04¼	Flakes, 175 lb bbls wks.....lb.	.....	.05	.05	.05
.....	.21	.21	.21	Nickel Chloride, bbls kegs....lb.	.21	.24	.24	.21
1918	.35	.35	.35	Oxide, 100 lb kegs NY.....lb.	.35	.38	.38	.35
1918	.09	.08½	.08⅜	Salt dbl, 400 lb bbls NY....lb.	.09	.09½	.09¾	.09
1918	.08¾	.08	.08¼	Single, 400 lb bbls NY.....lb.	.08¾	.09	.09	.08¾
.....	1.25	1.10	1.24	Nicotine, free 40%, 8 lb tins, cases.....lb.	1.25	1.30	1.30	1.25
.....	1.10	1.10	1.10	Sulfate, 10 lb tins.....lb.	.....	1.10	1.10	1.10
.....	13.00	13.00	13.00	Nitre Cake, 500 lb bbls.....ton	13.00	14.00	14.00	13.00
.06½	.10¼	.09¼	.09½	Nitrobenzene, redistilled, 1000 lb drs wks.....lb.	.10½	.10½	.10½	.10¼
.....	.40	.40	.40	Nitrocellulose, regular drums wks.....lb.	.40	Nom.	Nom.	.40
				Low viscosity (soln only)				
.....	.55	.55	.55	Grade 1 drums, wks.....lb.	.55	Nom.	Nom.	.55
.....	.50	.50	.50	Grade 2 drums, wks.....lb.	.50	Nom.	Nom.	.50
3.05	3.60	3.35	3.53	Nitrogenous Material, bulk..unit	.....	3.35	3.35	3.35
1918	.25	.25	.25	Nitronaphthalene, 550 lb bbls.lb.	.....	.25	.25	.25
1918	.14	.14	.14	Nitrotoluene, 1000 lb drs wks.lb.	.14	.15	.15	.14
.16	.25	.25	.25	Nutgalls Aleppy, bags.....lb.	.25	Nom.	Nom.	.25
.15	.17	.17	.17	Chinese, bags.....lb.	.17	.18	.18	.17
.....	.22	.22	.22	Powdered, bags.....lb.	.22	.24	.24	.22
.08	.03½	.03½	.03½	Oak, tanks, wks.....lb.	.....	.03½	.03½	.03½
.08	.04	.04	.04	23-25% liq., 600 lb bbl wk .lb.	.04	.04½	.04½	.04
.....	45.00	45.00	45.00	Oak Bark, ground.....ton	45.00	50.00	50.00	45.00
.....	20.00	20.00	20.00	Whole.....ton	20.00	23.00	23.00	20.00
.07½	.14½	.13	.13⅜	Orange-Mineral, 1100 lb casks NY.....lb.	.13	.13¼	.13¼	.13
.....	2.20	2.20	2.20	Orthoaminophenol, 50 lb kgs..lb.	2.20	2.25	2.25	2.20
.....	2.50	2.35	2.36¼	Orthoanisidine, 100 lb drs....lb.	2.35	2.50	2.50	2.35
.....	.50	.50	.50	Orthochlorophenol, drums....lb.	.50	.65	.65	.50
.....	.18	.18	.18	Orthocresol, drums.....lb.	.18	.28	.28	.18
1918	.06	.06	.06	Orthodichlorobenzene, 1000 lb drums.....lb	.06	.07	.07	.06
1918	.32	.32	.32	Orthonitrochlorobenzene, 1200 lb drs wks.....lb.	.32	.35	.35	.32
1918	.13	.13	.13	Orthonitrotoluene, 1000 lb drs wks.....lb.	.17	.18	.18	.17
1918	.85	.85	.85	Orthonitrophenol, 350 lb dr...lb.	.85	.90	.90	.85
1918	.29	.25	.28	Orthotoluidine, 350 lb bbl 1c-1.lb.	.29	.31	.31	.29
1918	.70	.70	.70	Orthonitroparachlorphenol, tins .....lb.	.70	.75	.75	.70
.....	.16	.16	.16	Osage Orange, crystals.....lb.	.16	.17	.17	.16
1918	.07	.07	.07	51 deg. liquid.....lb.	.07	.07½	.07½	.07
.....	.14½	.14½	.14½	Powdered, 100 lb bags.....lb.	.14½	.15	.15	.14½
.04¾	.06½	.06½	.06½	Paraffin, refd, 200 lb cs slabs 123-127 deg. M. P.....lb.	.06½	.06¾	.06¾	.06½
.05½	.07½	.07½	.07½	128-132 deg. M.P.....lb.	.07½	.07¾	.07¾	.07½
.06½	.08	.08	.08	133-137 deg. M.P.....lb.	.08	.08½	.08½	.08
1918	.08¾	.08¾	.08¾	138-140 deg. M.P.....lb.	.08¾	.10	.10	.08¾
.....	.29	.26	.26½	Para Aldehyde, 110-55 gal drs .lb.	.26	.28	.28	.26
1918	1.00	1.00	1.00	Aminoacetanilid, 100 lb bg.lb.	1.00	1.05	1.05	1.00
.....	1.25	1.25	1.25	Aminohydrochloride, 100 lb kegs .....lb.	1.25	1.30	1.30	1.25
.....	.15	.15	.15	Aminophenol, 100 lb kegs...lb.	.....	1.15	1.15	1.15
.....	.50	.50	.50	Chlorophenol, drums.....lb.	.50	.65	.65	.50
.....	.12	.12	.12	Coumarone, 330 lb drums..lb.	.....	.....	.....	.....
.....	2.25	2.25	2.25	Cymene, refd, 110 gal dr...gal.	2.25	2.50	2.50	2.25
1918	.17	.17	.17	Dichlorobenzene, 150 lb bbls wks.....lb.	.17	.20	.20	.17
1918	.53	.50	.50½	Nitroacetanilid, 300 lb bbls.lb.	.50	.55	.55	.50
1917	.52	.52	.52	Nitroaniline, 300 lb bbls wks .....lb.	.48	.49	.49	.48
.....	.32	.32	.32	Nitrochlorobenzene, 1200 lb drs wks.....lb.	.....	.32	.32	.32
1918	2.75	2.75	2.75	Nitro-orthotoluidine, 300 lb bbls.....lb.	2.75	2.85	2.85	2.75
1918	.50	.50	.50	Nitrophenol, 185 lb bbls....lb.	.50	.55	.55	.50
.....	.92	.92	.92	Nitrosodimethylaniline, 120 lb bbls.....lb.	.92	.94	.94	.92
1918	.30	.25	.26	Nitrotoluene, 350 lb bbls...lb.	.....	.30	.30	.30
1918	1.20	1.15	1.18	Phenylenediamine, 350 lb bbls .....lb.	1.15	1.20	1.20	1.15
.....	.40	.40	.40	Toluenesulfonamide, 175 lb bbls.....lb.	.40	.41	.41	.40
.....	.20	.18	.19	Toluenesulfonchloride, 410 lb bbls wks.....lb.	.20	.22	.22	.20
1918	.45	.38	.41	Toluidine, 350 lb bbls wk...lb.	.40	.42	.42	.40
.11	.21	.21	.21	Paris Green, Arsenic Basis 100 lb kegs.....lb.	.21	.22	.22	.21
.....	.19	.19	.19	500 lb kegs.....lb.	.19	.20	.20	.19
.12	.25	.25	.25	Persian Berry Ext., bbls.....lb.	.....	.....	.....	.....
.....	.02½	.02½	.02½	Petrolatum, Green, 300 lb bbl.lb.	.02½	.03	.03	.02½
1918	.18	.16	.17	Phenol, 250-100 lb drums.....lb.	.17	.20	.20	.17
1918	1.35	1.28	1.35	Phenyl - Alpha - Naphthylamine, 100 lb kegs.....lb.	.....	1.35	1.35	1.35
45.00	9.00	8.50	8.75	Phosphate Acid, 16% blk wks.ton	.....	9.00	9.00	9.00
3.00	3.00	3.00	3.00	Phosphate Rock, f.o.b. mines Florida Pebble, 68% basis..ton	3.00	3.15	3.15	3.00
2.00	3.50	3.50	3.50	70% basis.....ton	3.50	3.65	3.65	3.50
.....	4.00	3.85	3.96	72% basis.....ton	4.00	4.15	4.15	4.00
4.00	5.35	5.00	5.09	75-74% basis.....ton	.....	5.00	5.00	5.00
4.00	5.75	5.60	5.71½	75% basis.....ton	.....	5.75	5.75	5.75
5.75	6.25	6.00	6.19	77-76% basis.....ton	.....	6.25	6.25	6.25
4.50	5.50	5.00	5.12½	Tennessee, 72% basis.....ton	.....	5.00	5.00	5.00
.....	.35	.35	.35	Phosphorous Oxychloride 175 lb cyl.....lb.	35	.40	.40	.35
.45	.65	.60	.62	Red, 110 lb cases.....lb.	.60	.65	.65	.60
35	.32	.32	.32	Yellow, 110 lb cases wks.lb.	.....	.32	.32	.32
...	.46	.46	.46	Sesquisulfide, 100 lb cs.....lb.	.....	.46	.46	.46
....	.35	.35	.35	Trichloride, cylinders.....lb.	.....	.....	.....	.....
.....	.18	.18	.18	Phthalic Anhydride, 100 lb bbls wks.....lb.	.18	.20	.20	.18

Soda Ash

Caustic Soda

Bicarbonate of Soda

Michigan Alkali Company

General Sales Department: 21 East 40th St., New York City

Chicago Office: 1316 South Canal Street

Works: Wyandotte, Mich.

Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Dec. 1927 68.6c

was somewhat stronger than the remaining grades at 57c @ 58c lb. while bone dry declined to 59c @ 60c lb., representing a descent of 3c lb. This decline is surprising in view of the supposedly short spot market and proves that fictious price values have controlled the shellac market for the past month. The Calcutta and London markets have declined substantially and a similar move should follow here. The downward move of these prices seems an earnest one and a radical change should be seen by February.

Soda Ash — Interest in this market has been centered in contract business for the past month. Practically all of this type of business on both dense and light has been taken care of at this writing at the schedule of $1.15 100 lbs. in bulk; $1.32 100 lbs. in bags and $1.55 100 lbs. in bbls. for light ash and $1.22½ 100 lbs. in bulk, $1.37½ 100 lbs. in bags and $1.55 100 lbs. in bbls. for dense. These prices are on the same basis as 1927, with the exception of light ash in bags which is fractionally lower, and as a result sellers have had no trouble in lining up the business.

Soda Caustic — Having announced a general reduction in the 1928 contract price of 10c 100 lbs., makers have been centering their attentions on contracts for this year and at present a large percentage of this has been accounted for. Carloads of solid are being sold at $2.90 100 lbs. on contract, while both flake and solid are quoted at $3.30 100 lbs. for a similar position and quantity.

Sodium Flouride — Of the past ten days the market seems a bit unsettled for imported material and in one quarter the market has been reduced a bit and offers are now heard at 8½c lb. without any noticeable increase in the volume of sales.

Sodium Nitrate — The market remains in the same position with very little buying interest shown in present values. Local sellers are still maintaining the price of $2.40 100 lbs. for 100 ton lots or over and $2.45 100 lbs for lesser quantities. The future trend of the market is toward higher values as the seasonal demand is expected to be revived in February, in fact, reports from the South reveal that buyers are already evidencing interest in the form of inquiries. Chilean cables advise the shipments during December accrued as follows: 210,000 tons, Europe; 66,000 tons Eastern United States; 8,300 tons, South Africa; 7,400 tons Japan; 6,400 tons, Hawaii; 3,200 tons Western United States; 100 tons, Cuba. Total production in the West Coast amounted to 230,000 tons during December as compared with 85,731 tons, in December of the previous year.

1914	1927				Current	1928	
July	High	Low	Aver.		Market	High	Low
.....	40.00	37.00	38.50	Pigments Metallic, Red or Brown bags, bbls, Pa. wks.....ton	37.00	45.00	45.00	37.00
				Pine Oil, 55 gal drums or bbls				
1918	.63	.63	.63	Destructive dist.....lb.	.63	.64	.64	.63
.....	8.00	8.00	8.00	Prime bbls.....bbl.	8.00	10.60	10.60	8.00
.34	.70	.66	.69	Steam dist. bbls.....gal.	.....	.70	.70	.70
				Pitch Hardwood, ...				
37.50	40.00	40.00	40.00	wks.....ton	40.00	45.00	45.00	40.00
				Plaster Paris, tech, 250 lb bbls				
1.50	3.30	3.30	3.30	.....bbl.	.....	3.30	3.30	3.30
				Potash				
.04¾	.07½	.07½	.07½	Potash, Caustic, wks.....lb.	.....	.07½	.07½	.07½
.....	.07½	.07½	.07½	Imported casks c-1.....lb.	.....	.07½	.07½	.07½
				Potash Salts, Rough Kainit				
8.36	9.00	9.00	9.00	12.4% basis bulk.....ton	.....	9.00	9.00	9.00
.....	9.50	9.50	9.50	14% basis.....ton	.....	9.50	9.50	9.50
				Manure Salts.....				
13.58	12.40	12.40	12.40	20% basis bulk.....ton	.....	12.40	12.40	12.40
.....	18.75	18.75	18.75	30% basis bulk .....ton	.....	18.75	18.75	18.75
				Potassium Muriate, 80% basis				
39.07	36.40	36.40	36.40	bags.....ton	.....	36.40	36.40	36.40
				Pot. & Mag. Sulfate, 40% basis				
25.04	27.00	27.00	27.00	bags.....ton	.....	27.00	27.00	27.00
				Potassium Sulfate, 90% basis				
47.57	47.30	47.30	47.30	bags.....ton	.....	47.30	47.30	47.30
				Potassium Bicarbonate, USP, 320				
.08	.09	.09	.09	lb bbls.....lb.	.09	.09½	.09½	.09
				Bichromate Crystals, 725 lb				
.06¾	.08¼	.08	.08¼	casks.....lb.	.08¼	.08¾	.08¾	.08½
.....	.12	.11	.11	Powd., 725 lb cks wks....lb.	.12	.12½	.12½	.12
.....	.16	.16	.16	Binoxiate, 300 lb bbls.....lb.	.16	.17	.17	.16
.....	.30	.30	.30	Bisulfate, 100 lb kegs.....lb.	.....	.30	.30	.30
				Carbonate, 80-85% calc. 800				
.03¾	.05⅛	.05⅛	.05⅛	lb casks.....lb.	.05⅜	.05¾	.05¾	.05⅜
				Chlorate crystals, powder 112				
.07¼	.08¼	.08¼	.08¼	lb keg wks.....lb.	.08½	.09	.09	.08¼
				Potassium Chlorate, Imp 112 lb				
.....	.08¼	.08¼	.08½	kegs NY.....lb.	.08¼	.08¼	.08¼	.08½
	.05¼	.05¼	.05¼	Chloride, crys bbls.....lb.	.05⅜	.05½	.05½	.05⅜
.....	.27	.27	.27	Chromate, kegs.....lb.	.27	.28	.28	.27
.20	.55	.55	.55	Cyanide, 110 lb. cases .....lb.	.55	.57½	.57½	.55
.13	.11½	.11½	.11½	Metabisulfite, 300 lb. bbl..lb.	.11½	.12	.12	.11½
.14	.16	.16	.16	Oxalate, Neut. 225 lb. bbls.lb.	.16	.17	.17	.16
.....	.11	.11	.11	Perchlorate, casks wks.....lb.	.11	.12	.12	.11
				Permanganate, USP, crys 500				
.09½	.15½	.14½	.14½	& 100 lb drs wks.....lb.	.15½	.15½	.15½	.15½
.21	.39	.37½	.38	Prussiate, red, 112 lb keg...lb.	.37½	.38	.38	.37½
.12½	.18	.18	.18	Yellow, 500 lb casks.....lb.	.18	.18½	.18½	.18
.....	.51	.51	.51	Tartrate Neut, 100 lb keg...lb.	.....	.51	.51	.51
				Titanium Oxalate, 200 lb bbls				
.....	.25	.25	.25	.....lb.	.....	.25	.25	25
.....	.04	.04	.04	Pumice Stone, lump bags.....lb.	.04	.05	.05	.04
.04½	.04½	.04½	.04½	250 lb bbls.....lb.	.04½	.06	.06	.04½
.01½	.02½	.02½	.02½	Powdered, 350 lb bags.....lb.	.02½	.03	.03	.02½
2.65	3.75	3.75	3.75	Putty, commercial, tubs..100 lb.	.....	.03¼	.03¼	.03¼
4.25	5.50	5.50	5.50	Linseed Oil, kegs.....100 lb.	.....	.05½	.05½	.05½
.....	3.00	1.50	1.94	Pyridine, 50 gal drums.....gal.	.....	1.50	1.50	1.50
				Pyrites, Spanish cif Atlantic				
.10½	.13	.12	.12½	ports bulk.....unit	.13	.13¼	.13¼	.13
.02¾	.03	.03	.03	Quebracho, 35% liquid tks....lb.	.03	.03½	.03½	.03
.....	.03½	.03½	.03½	450 lb bbls c-1.....lb.	.03¼	.04	.04	.03½
.....	.04	.04	.04	35% Bleaching, 450 lb bbl..lb.	.04	.05	.05	.04
.04¾	.05	.04¾	.04¾	Solid, 63%, 100 lb bales cif.lb.	.05	.05½	.05½	.05
.....	.05	.05	.05	Clarified, 64%, bales.....lb.	.....	.05	.05	.05
				Quercitron, 51 deg liquid 450 lb				
.01½	.06½	.06½	.06½	bbls.....lb.	.05½	.06	.06	.05½
.02¾	.10	.10	.10	Solid, 100 lb boxes.....lb.	.10	.13	.13	.10
22.00	14.00	14.00	14.00	Bark, Rough.....ton	.....	14.00	14.00	14.00
.....	34.00	34.00	34.00	Ground.....ton	34.00	35.00	35.00	34.00
1918	.45	.45	.45	R Salt, 250 lb bbls wks.....lb.	.45	.46	.46	.45
.03	.18	.18	.18	Red Sanders Wood, grd bbls..lb.	.....	.....	.....	.....
1918	1.25	1.25	1.25	Resorcinol Tech, cans.....lb.	1.80	2.00	2.00	1.80
				Rosin Oil, 50 gal bbls, first run				
.27	.67	.57	.59	.....gal.	.....	.57	.57	.57
.38	.72	.62	.64	Second run.....gal.	.....	.62	.62	.62
				Rosins, 600 lb bbls 280 lb...unit				
4.37½	13.00	8.50	10.08⅓	B.....	.....	9.00	9.00	9.00
4.42½	13.00	8.50	10.17	D.....	.....	9.65	9.65	9.65
4.42½	13.15	8.50	10.23	E.....	.....	9.75	9.75	9.75
4.47½	13.20	8.50	10.49	F.....	.....	9.95	9.95	9.95
4.47½	13.25	8.50	10.58⅓	G.....	.....	10.00	10.00	10.00
4.47½	13.30	8.50	10.65	H.....	.....	10.05	10.05	10.05
4.55	13.35	8.55	10.79⅔	I.....	.....	10.10	10.10	10.10
4.49½	14.80	8.65	11.05	K.....	.....	10.15	10.15	10.15
5.47½	15.00	8.80	11.15¼	M.....	.....	10.30	10.30	10.30
6.12½	15.85	9.15	11.62	N.....	.....	11.00	11.00	11.00
6.67½	16.60	10.50	12.58	WG.....	.....	11.65	11.65	11.65
6.92½	18.55	12.00	14.34	WW.....	.....	12.65	12.65	12.65
.....	24.00	24.00	24.00	Rotten Stone, bags mines....ton	24.00	30.00	30.00	24.00
.....	.07	.07	.07	Lump, imported, bbls. ....lb.	.07	.08	.08	.07
.05½	.09	.09	.09	Selected bbls.....lb.	.09	.12	.12	.09
.02½	.02	.02	.02	Powdered, bbls.....lb.	.02	.05	.05	.02
.02⅜	.04½	.04¼	.04¼	Sago Flour, 150 lb bags.....lb.	.04½	.05	.05	.04½
.60	.90	.90	.90	Sal Soda, bbls wks.....100 lb.	.....	.....	.....	.....
11.00	19.00	19.00	19.00	Salt Cake, 94-96% c-1 wks...ton	19.00	20.00	20.00	19.00
8.00	15.00	15.00	15.00	White, 87% wks.....ton	15.00	17.00	17.00	15.00
				Saltpetre, double refd granular				
.04¾	.06¼	.06¼	.06¼	450-500 lb bbls.....lb.	.06¼	.06¼	.06¼	.06¼
.....	.01½	.01½	.01½	Satin, White, 500 lb bbls.....lb.	.....	.01½	.01½	.01½
.18½	.66	.47	.57	Shellac Bone dry bags,.....lb.	.59	.61	.61	.59
.15	.57	.41	.48	Garnet, bags.....lb.	.53	.55	.55	.53
.14½	.65	.40	.52½	Superfine, bags.....lb.	.57	.58	.58	.57
.15½	.37	.57	.49	T. N. bags.....lb.	.54	.55	.55	.54
1918	.50	.50	.50	Schaeffer's Salt, kegs.....lb.	.53	.57	.57	.53

"COLUMBIA BRAND"

Caustic Soda

SOLID FLAKE
GROUND LIQUID

Soda Ash

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DENSE

Columbia Chemical Division

Pittsburg Plate Glass Co., Barberton, Ohio

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Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1917 71.7c - Dec. 1927 68.6c

Tankage — Ground tankage is still being quoted at $5.10 and 10c unit in New York but very few sales have been registered at this level. The Chicago market has again been advanced 5c unit and sales have been made at the new basis of $3.90 and 10c unit. The heavy demand from Pacific Coast buyers has absorbed a large portion of the available South American supply and consequently the market for goods emanating from this source has been advanced to $5.00 and 10c unit.

Tin Salts — The past month has been marked by several revisions both in directions, based on the movement of the tin market. Just after the first of the year makers lowered the price ½c lb. and the market is now held at 17½c lb. for bichloride; 41½c lb. for crystals and 35½c lb. for tetrachloride.

Turpentine — Has been on the upward turn since just prior to the end of 1927 and the market has advanced over 7c gal. since Jan. 1. Although this advance may be offset during a decline during the next week or ten days, the diminishing receipts at Southern seaboard ports seems to indicate that the market is at its low ebb. Quotations in Savannah last week were at 55c gal.

Toner Reds — Moving quietly through consuming channels at firm prices. Lithol is offered at 85c @ 90c lb. para is weaker owing to reduced costs and toulidine is strong at $1.75 @ $1.80.

Valonia — The Turkish Government has removed the ban prohibiting the export of valonia and goods have already arrived in New York. A true market price cannot yet be established as the material was used in fulfillment of old orders. Replacements will be made in regular order now and the market should return to a normal basis within a short time.

Wattle Bark — Supplies are very difficult to obtain and the market has advanced to $76.00 ton. The cause of the current price dates back to shortly after the war when the demand for wattle bark was so heavy that all labor employed in the primary market was used to strip the bark and the matter of re-planting the trees was forgotten. As it requires seven years from the planting date, before the bark is fit for commercial use, this scarcity had been expected. The primary suppliers report that the condition will be rectified in June or July.

Zinc Ammonium Chloride — The domestic market has shown signs of improvement since the early part of December and sellers claim that they are now able to get 5¼c lb. in some directions. This price is subject to shading in some instances, however.

1914 July	1927 High	1927 Low	1927 Aver.		Current Market		1928 High	1928 Low
.....	6.00	6.00	6.00	Silica, Crude, bulk mines....ton	8.00	11.00	11.00	8.00
.....	15.00	15.00	15.00	Refined, floated bags.....ton	22.00	30.00	30.00	22.00
.....	32.00	32.00	32.00	Air floated bags.....ton	.....	.....	.....	.....
.....	55.00	55.00	55.00	Extra floated bags.....ton	32.00	40.00	40.00	32.00
10.00	15.00	15.00	15.00	Soapstone, Powdered, bags f.o.b. mines.....ton	15.00	22.00	22.00	15.00
				Soda				
.67½	1.32½	1.32½	1.32½	Soda Ash, 58% dense, bags c-l wks.....100 lb.	.....	1.40	1.40	1.40
.57½	2.14	2.04	2.12	58% light, bags del NY.100 lb.	2.04	2.29	2.29	2.04
.....	1.32½	1.32½	1.32½	Contract, bags c-1 wks.100 lb.	.....	1.32½	1.32½	1.32½
2.50	4.16	4.06	4.14½	Soda Caustic, 76% grnd & flake drums del NY.....100 lb.	4.16	4.21	4.21	4.16
.....	3.76	3.66	3.74½	76% solid drs del NY...100 lb.	3.76	3.91	3.91	3.76
.....	3.00	3.00	3.00	Contract, c-1 wks.....100 lb.	.....	3.00	3.00	3.00
.03½	.04½	.04½	.04½	Sodium Acetate, crystals, 450 lb bbls wks.....lb.	.04½	.05	.05	.04½
.....	.19	.18	.18½	Arsenate, drums.. .....lb.	.....	.....	.....	.....
.....	1.00	1.00	1.00	Arsenite, drums.....gal.	.....	.....	.....	.....
1.00	2.41	2.41	2.41	Bicarb., 400 lb bbl NY..100 lb.	.....	2.41	2.41	2.41
.04½	.06½	.06½	.06½	Bichromate, 500 lb cks wks.lb.	.06½	.06½	.06½	.06½
.02½	.08½	.08½	.08½	Bisulfite, 500 lb bbl wks....lb.	.....	.04	.04	.04
.60	1.30	1.30	1.30	Carb. 350 lb bbls NY...100 lb.	1.30	1.35	1.35	1.30
.07½	.06½	.06½	.06½	Chlorate, 112 lb kegs wks...lb.	.06½	.06½	.06½	.06½
.....	12.00	12.00	12.00	Chloride, technical.....ton	12.00	13.00	13.00	12.00
.22	.20	.20	.20	Cyanide, 96-98%, 100 & 250 lb drums wks.....lb.	.....	.20	.20	.20
1918	.08½	.08½	.08½	Fluoride, 300 lb bbls wks...lb.	.08½	.09	.09	.08½
.....	.22	.22	.22	Hydrosulfite, 200 lb bbls f.o.b. wks.....lb.	.22	.24	.24	.22
.....	.05	.05	.05	Hypochloride solution, 100 lb cbys.....lb.	.....	.05	.05	.05
1.40	2.65	2.65	2.65	Hyposulfite, tech, pea crys 375 lb bbls wks....100 lb.	2.65	3.05	3.05	2.65
1.30	2.40	2.40	2.40	Technical, regular crystals 375 lb bbls wks... 100 lb.	2.40	2.65	2.65	2.40
.....	.70	.45	.62	Metanilate, 150 lb bbls.....lb.	.....	.45	.45	.45
.....	.02½	.02½	.02½	Monohydrate, bbls.....lb.	.....	.....	.....	.....
1918	.55	.55	.55	Naphthionate, 300 lb bbl...lb.	.55	.57	.57	.55
2.12½	2.67	2.25	2.52½	Nitrate, 92%, crude, 200 lb bags c-l NY.....100 lb.	.....	2.45	2.45	2.45
.05½	.08½	.08	.08	Nitrite, 500 lb bbls spot...lb.	.08	.08½	.08½	.08
.....	.25	.25	.25	Orthochlorotoluene, sulfonate, 175 lb bbls wks.....lb.	.25	.27	.27	.25
.....	.20	.20	.20	Oxalate Neut, 100 lb kegs..lb.	.20	.23	.23	.20
.....	3.90	3.90	3.90	Paratoluene, tri-sodium, tech. 100 lb bbls c-1....100 lb.	.....	3.90	3.90	3.90
.....	.08	.08	.08	Sulfonate, 175 lb bbls....lb.	.08	.09	.09	.08
.19	.21	.21	.21	Perborate, 275 lb bbls.....lb.	.21	.22	.22	.21
2.12½	3.25	3.25	3.25	Phosphate, di-sodium, tech. 550 lb bbls.....100 lb.	3.25	3.55	3.55	3.25
.....	.69	.69	.69	Picramate, 100 lb kegs.....lb.	.69	.72	.72	.69
.08½	.12	.11	.12	Prussiate, Yellow, 350 lb bbl wks.....lb.	.12	.12½	.12½	.12
.....	.13½	.13½	.13½	Pyrophosphate, 100 lb keg..lb.	.13½	.14	.14	.13½
.02	1.20	1.20	1.20	Silicate, 40 deg clear 55 gal drs wks.....100 lb.	1.20	1.45	1.45	1.20
.02	.85	.85	.85	40 deg turbid 55 gal drs wks.....100 lb.	.85	1.10	1.10	.85
.....	.04½	.04½	.04½	Silicofluoride, 450 lb bbls NY .....lb.	.04½	.05	.05	.04½
.....	.48½	.48½	.48½	Stannate, 100 lb drums.....lb.	.48½	.49	.49	.48½
.....	.20	.20	.20	Stearate, bbls.....lb.	.20	.29	.29	.20
.....	.16	.16	.16	Sulfanilate, 400 lb bbls.....lb.	.16	.18	.18	.16
.....	.02½	.02½	.02½	Sulfate Anhyd., 550 lb bbls c-1 wks.....lb.	.02½	.02½	.02½	.02½
.01½	.02½	.02½	.02½	Sulfide, 30% crystals, 440 lb bbls wks.....lb.	.02½	.02½	.02½	.02½
.....	.03½	.03½	.03½	62% solid, 650 lb drums 1c-1 wks.....lb.	.03½	.04	.04	.03½
.02½	.03½	.03½	.03½	Sulfite, crystals, 400 lb bbls wks.....lb.	.03½	.03½	.03½	.03½
.....	.40	.40	.40	Sulfocyanide, bbls.....lb.	.40	.50	.50	.40
.....	.85	.80	.82½	Tungstate, tech, crystals, kegs .....lb.	.80	.85	.85	.80
1917	.40	.35	.37	Solvent Naphtha, 110 gal drs wks.....gal.	.35	.40	.40	.35
1918	.01½	.01½	.01½	Spruce, 25% liquid, bbls.....lb.	.....	.01½	.01½	.01½
1918	.01	.01	.01	25% liquid, tanks wks.....lb.	.....	.01	.01	.01
.....	.02	.02	.02	50% powd., 100 lb bag wks.lb.	.02	.02½	.02½	.02
.....	3.22	3.07	3.14½	Starch, powd., 140 lb bags c-1 .....100 lb.	.....	3.07	3.07	3.07
1.99	3.12	2.97	3.03	Pearl, 140 lb bags.....100 lb.	.....	2.97	2.97	2.97
.05½	.06	.04½	.05½	Potato, 200 lb bags c-1.....lb	.06	.06½	.06½	.06
.05½	.06½	.06½	.06½	Imported bags.....lb.	.06½	.06½	.06½	.06½
.05½	.08	.06	.07	Soluble.....lb.	.08	.08½	.08½	.08
.07	.09½	.09	.09½	Rice, 200 lb bbls.....lb.	.09½	.10	.10	.09½
.04½	.06½	.06½	.06½	Wheat, thick bags.....lb.	.06½	.07	.07	.06½
.04½	.09½	.09½	.09½	Thin bags.....lb.	.09½	.10	.10	.09½
1918	.07½	.07½	.07½	Strontium carbonate, 600 lb bbls wks.....lb.	.07½	.07½	.07½	.07½
.07½	.08½	.08	.08	Nitrate, 600 lb bbls NY....lb.	.08½	.09	.09	.08½
				Sulfur				
1.85	2.05	.205	2.05	Sulfur Brimstone, broken rock, 250 lb bag c-1.....100 lb.	.....	2.05	2.05	2.05
.....	18.00	18.00	18.00	Crude, f.o.b. mines.... ton	18.00	19.00	19.00	18.00
.....	2.40	2.40	2.40	Flour for dusting 99½%, 100 lb bags c-1 NY.....100 lb.	.....	2.40	2.40	2.40
2.00	2.50	2.50	2.50	Heavy bags c-1.....100 lb.	.....	2.50	2.50	2.50
2.20	3.45	3.45	3.45	Flowers, 100%, 155 lb bbls c-1 NY.....100 lb.	.....	3.45	3.45	3.45
1.85	2.65	2.65	2.65	Roll, bbls 1c-1 NY.....100 lb.	2.65	2.85	2.85	2.65

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Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Dec. 1927 68.6c

OILS AND FATS

Castor Oil — Steadily increasing demand coupled with a scarcity of replacements during the past month occasioned one of the infrequent price changes in this commodity. The 1c lb. advance places No. 1 at 13c @ 13½c lb. and No. 2 at 12½c @ 13c lb. Blown is unchanged a 17c lb.

Chinawood Oil — Prices at the Coast have been subject to sweeping changes during the past month so that Dec. 15 found the market at 12⅛c lb. To-day, on the contrary, Coast tanks are quoted at 13½c. This is said to be in anticipation of the consistently large January-February demand, although it is claimed that exporters are short and are making no offerings. The spot price followed in general the trend at the Coast and after slumping as low as 14¾c lb. is back where it is being quoted at 15½c @ 16c lb.

Coconut Oil — A gradual establishment of a steadier and firmer feeling has been accomplished in this market during the month. Activity, which had been almost negligible, increased during the last two weeks causing an advance in prices of ⅛c @ ¼c lb. in all grades.

Corn Oil — The advance of ¼c @ ½c lb. in all grades which has occurred during the last two weeks is attributed to a very natural scarcity which is felt at this season of the year. This has been strong enough to offset the traditional movement in sympathy with cottonseed oil prices. Barrel price on crude is now 11c lb. and on refined, 12½c lb., while the tank price is respectively 9⅝c and 11½c lb.

Cottonseed Oil — A rapid slump in price in a weak market about Dec. 15 and an equally strong recovery the following week featured the month's trading in this market. The price change in each case on spot was ½c lb. When last reported the market was steady and active with both spot and futures at 10¼c lb. and crude at 8¾c @ 9c lb., which, with the exception of futures, is the position which was held the first week of December.

Greases — The uncommon strength of the animal group is felt here and while there have been slight variations, the price tendency has been decidedly upward, with higher prices being reported during the last two weeks. Brown is at 7¼c @ 7½c lb., yellow at 7⅞c lb., and choice white at 10½c lb.

Linseed Oil — The early weeks of this month found conditions a bit more active but still very quiet, with prices lower than at the corresponding period of last month. The five-barrel price was 10c lb., carload lots 9.6c lb. and tanks 8.8c lb. and, due to weak condition of the market, even these prices would be shaded a point on a firm bid.

1914 July	1927 High	1927 Low	1927 Aver.		Current Market	1928 High	1928 Low
.....	.05	.05	.05	Sulfur Chloride, red, 700 lb drs wks.....lb.	.05	.05½	.05½	.05
.....	.03¾	.03¼	.03½	Yellow, 700 lb drs wks.....lb.	.03½	.04½	.04½	.03½
.....	.08	.08	.08	Sulfur Dioxide, 150 lb cyl....lb.	.08	.08½	.08½	.08
.....	.17	.17	.17	Extra, dry, 100 lb cyl.....lb.	.17	.19	.19	.17
.....	.65	.65	.65	Sulfuryl Chloride, 600 lb dr...lb.	.10	.65	.65	.10
.....	.11	.11	.11	Stainless, 600 lb bbls.....lb.	.11	.11½	.11½	.11
.....	.05	.05	.05	Extract, 450 lb bbls.....lb.	.05½	.06	.06	.05½
.....	130.00	130.00	130.00	Sicily Leaves, 100 lb bg...ton	.....	130.00	130.00	130.00
62.00	80.00	72.00	73.75	Ground shipment.....ton	.....	72.00	72.00	72.00
40.00	55.00	55.00	55.00	Virginia, 150 lb bags.....ton	55.00	60.00	60.00	55.00
.....	12.00	12.00	12.00	Talc, Crude, 100 lb bgs NY..ton	12.00	15.00	15.00	12.00
15.00	16.00	16.00	16.00	Refined, 100 lb bgs NY..ton	16.00	18.00	18.00	16.00
15.00	30.00	30.00	30.00	French, 220 lb bags NY...ton	30.00	35.00	35.00	30.00
.....	38.00	38.00	38.00	Refined, white, bags....ton	38.00	45.00	45.00	38.00
35.00	40.00	40.00	40.00	Italian, 220 lb bags NY...ton	40.00	50.00	50.00	40.00
.....	50.00	50.00	50.00	Refined, white, bags....ton	50.00	55.00	55.00	50.00
3.50	4.85	4.00	4.41	Tankage Ground NY.....unit	.....	5.10&10	5.10&10	5.10&10
3.10	5.25	3.75	4.29	High grade f.o.b. Chicago.unit	.....	3.90&10	3.90&10	3.90&10
.....	5.25	4.00	4.38½	South American cif.....unit	.....	4.95&10	4.95&10	4.95&10
.02	.04½	.04½	.04½	Tapioca Flour, high grade bgs.lb.	.04½	.05	.05	.04½
.01¾	.03¾	.03½	.03½	Medium grade, bags.....lb.	.03¾	.04	.04	.03¾
.....	.26	.26	.26	Tar Acid Oil, 15%, drums...gal.	.26	.27	.27	.26
.....	.29	.29	.29	25% drums.....gal.	.29	.30	.30	.29
.....	.07	.07	.07	Coke Oven, tanks wks.....lb	.07	.08	.08	.07
6.50	16.00	13.50	14.87½	Kiln Burnt, bbl.....bbl.	.....	13.50	13.50	13.50
6.76	18.50	13.50	15.38½	Retort, bbls.....bbl.	13.50	15.00	15.00	13.50
.75	1.15	1.15	1.15	Terra Alba Amer. No. 1, bags or bbls mills.....100 lb.	1.15	1.75	1.75	1.15
.60	1.50	1.50	1.50	No. 2 bags or bbls...100 lb.	1.50	2.00	2.00	1.50
.80	2.00	2.00	2.00	Imported bags.....100 lb.	.02	.02½	.02½	.02
.....	.20	.20	.20	Tetralene, 50 gal drs wks.....lb.	.....	.20	.20	.20
.....	.22	.22	.22	Thiocarbanilid, 170 lb bbl.....lb.	.22	.24	.24	.22
.11¼	.20½	.17½	.19	Tin Bichloride, 50% soln, 100 lb bbls wks.....lb.	.....	.17½	.17½	.17½
.23	.48	.41½	.45	Crystals, 500 lb bbls wks...lb.	.....	.41½	.41½	.41½
.....	.71½	.58	.65	Metal Straits NY.....lb.	.....	.58	.58	.58
.36	.75	.70	.71	Oxide, 300 lb bbls wks.....lb.	.....	.75	.75	.75
.....	.48	.35½	.39	Tetrachloride, 100 lb drs wks .....lb.	.....	.35½	.35½	.35½
.....	.40	.40	.40	Titanium Oxide, 200 lb bbl...lb.	.....	.40	.40	.40
.....	.13½	.13½	.13½	Pigment, bbls wks.....lb.	.13½	.14	.14	.13½
1918	.40	.40	.40	Toluene, 110 gal drs wks.....lb.	.....	.40	.40	.40
.....	.35	.35	.35	8000 gal tank cars wks.....lb.	.....	.35	.35	.35
1918	.90	.90	.90	Toluidine, 350 lb bbls.....lb.	.90	.94	.94	.90
1918	.31	.31	.31	Mixed, 900 lb drs wks.....lb.	.31	.32	.32	.31
.....	.85	.85	.85	Toner Lithol, red, bbls.....lb.	.85	.90	.90	.85
.....	.75	.75	.75	Para, red, bbls.....lb.	.75	.80	.80	.75
1918	1.75	1.75	1.75	Toluidine.....lb.	1.75	1.80	1.80	1.75
.....	3.60	3.60	3.60	Triacetin, 50 gal drs wks.....lb.	3.60	3.90	3.90	3.60
.....	.36	.36	.36	Tricresyl Phosphate, drs.....lb.	.36	.50	.50	.36
.....	.70	.69	.69	Triphenylguanidine.....lb.	.69	.73	.73	.69
.....	.70	.70	.70	Phosphate, drums.....lb.	.70	.75	.75	.70
.....	2.50	2.50	2.50	Tripoli, 500 lb bbls.....100 lb.	2.50	3.00	3.00	2.50
.49	.86	.53½	.65	Turpentine Spirits, bbls.....gal.	.....	.61	.61	.61
.34	.76	.46	.55	Wood Steam dist. bbls....gal.	.46	.47	.47	.46
.....	.18	.18	.18	Urea, pure, 112 lb cases.....lb.	.18	.20	.20	.18
.....	70.00	66.00	61.52	Valonia Beard, 42%, tannin bags.....ton	.....	Nom.	Nom.	Nom.
.....	49.50	39.00	43.96	Cups, 30-31% tannin.....ton	.....	Nom.	Nom.	Nom.
.....	68.00	43.00	48.52	Mixture, bark, bags.....ton	.....	Nom.	Nom.	Nom.
.55	1.95	1.55	1.94¾	Vermilion, English, kegs.....lb.	.....	1.95	1.95	1.95
.....	59.00	49.50	53.71	Wattle Bark, bags.....ton	.....	76.00	76.00	76.00
.....	.05¾	.05¾	.05¾	Extract 55%, double bags ex-dock.....lb.	.....	.05¾	.05¾	.05¾
.45	1.25	1.25	1.25	Whiting, 200 lb bags, c-1 wks .....100 lb.	.....	1.25	1.25	1.25
.....	13.00	13.00	13.00	Alba, bags c-1 NY.....ton	.....	13.00	13.00	13.00
.55	1.35	1.35	1.35	Gilders, bags c-1 NY...100 lb.	.....	1.35	1.35	1.35
.....	.06½	.06¼	.06¼	Zinc Ammonium Chloride powd., 400 lb bbls.....lb.	.....	.05¾	.05¾	.05¾
.08¼	.09¼	.09¼	.09¼	Carbonate Tech, bbls NY..lb.	.09¼	.10	.10	.09¾
.04½	.06	.06	.06	Chloride Fused, 600 lb drs. wks.....lb.	.....	.06	.06	.06
.04½	.06¼	.06¼	.06¼	Gran., 500 lb bbls wks.....lb.	.06½	.06½	.06½	.06¼
.....	3.00	3.00	3.00	Soln 50%, tanks wks...100 lb.	.....	3.00	3.00	3.00
.....	.40	.40	.40	Cyanide, 100 lb drums.....lb.	.40	.41	.41	.40
.05¾	.09	.09	.09	Dust, 500 lb bbls c-1 wks...lb.	.....	.09	.09	.09
.....	7.35	6.40	6.66	Metal, high grade slabs c-1 NY.....100 lb.	.....	6.40	6.40	6.40
.05¾	.07¾	.07¾	.07¾	Oxide, American bags wks..lb.	.07¾	.07¾	.07¾	.07¾
.06½	.10¾	.10¾	.10¾	French, 300 lb bbls wks..lb.	.10¾	.12¾	.12¾	.10¾
.02¾	.03½	.03	.03½	Sulfate, 400 bbl wks.....lb.	.03½	.03¾	.03¾	.03½
.....	.30	.30	.30	Sulfide, 500 lb bbls.....lb.	.30	.32	.32	.30
.....	.29	.29	.29	Sulfocarbolate, 100 lb keg..lb.	.29	.30	.30	.29
.....	.38	.32	.37	Xylene, 10 deg tanks wks....lb.	.....	.32	.32	.32
.....	.36	.30	.35	Commercial, tanks wks....lb.	.30	.32	.32	.30
1918	.35	.35	.35	Xylidine, crude.....lb.	.....	.38	.38	.38
.....	.02½	.02½	.02½	Zirconium Oxide, Nat. kegs..lb.	.02½	.03	.03	.02½
.....	.45	.45	.45	Pure kegs.....lb.	.45	.50	.50	.45
.....	.08½	.08	.08	Semi-refined kegs.....lb.	.08	.10	.10	.08

Oils and Fats

.08	.14	.13	.13	Castor, No. 1, 400 lb bbls....lb.	.14	.14½	.14½	.14
.08	.14	.12½	.13½	No. 3, 400 lb bbls.....lb.	.13½	.14	.14	.13½
.....	.18	.17	.18	Blown, 400 lb bbls.....lb.	.....	.17	.17	.17
.06½	.31	.13¾	.19	China Wood, bbls spot NY..lb.	.15½	.16	.16	.15½
.05¾	.18	.12½	.16¼	Tanks, spot NY.....lb.	.....	Nom.	Nom.	Nom.
				Coast tanks, Jan.....lb.	.....	.13½	.13½	.13½
1918	.12	.12	.12	Cocoanut, edible, bbls NY....lb.	...	.11½	.11½	.11½
.09½	.09¾	.09	.09	Ceylon, 375 lb bbls NY....lb.	.09¾	.10	.10	.09¾
.08½	.08⅞	.08	.08¼	8000 gal tanks NY.....lb.	.....	.08⅞	.08⅞	.08⅞
.10½	.10½	.09½	.10¼	Cochin, 375 lb bbls NY....lb.	.10½	.10½	.10½	.10½

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Standard Quality

Prices Current and Comment.

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Dec. 1927 68.6c

Oleo Oil — An unusual situation exists here inasmuch as the price trend has been downward during the last month, despite the strong upward position of the group as a whole, and the large quantities which have been exported. Exports in one week alone totaled 560 tierces. No. 1 is now at 17⅜c lb., No. 2 at 15½c lb., and No. 3 at 14c lb., which is ½c @ ⅞c lb. lower than at the corresponding period of last month.

Olive Oil — The impending proximity of new crop, the first supplies of which should be available by the end of this month, denatured oil has been consistently declining in price, now being at $1.25 @ $1.30 gal. Foots, however, moves more erratically, at present being ⅛c lb. lower than the same time last month although at one time it was as low as 9½c lb.

Palm Oil — In view of the high prices which have existed in extra tallow, there has been surprisingly little interest in this market. In fact, Lagos declined ⅛c lb. in the middle of December. Within the past ten days, with further advance in tallow, the market has strengthened appreciably with some advance in price. Lagos now being at 8c @ 8¼c lb. and Niger at 7¼c @ 7⅛c lb. Most factors seem confident that this oil will advance further in price as tallow shows no sign of weakening and the differential is still too great.

Perilla Oil — Large accumulations at the Coast have brought about a steady downward price trend during the past month. Tanks at the Coast are now at 10¾c @ 11c lb. while barrels New York are at 13c @ 13¼c lb.

Stearic Acid — To the continued strength and high prices existing in the animal fats group is attributed the advance made last week in this commodity. Double pressed distilled, is now at 11½c @ 12c lb., double pressed saponified at 11¾c @ 12¼c lb., and tripple pressed distilled at 13½c @ 14c lb.

Tallow — The constantly increasing strength of this market has been and continues to be the major feature of the oils and fats group. Extra is now at 9c @ 9⅛c lb. and there is much talk of a 9½c lb. market. It seems quite safe, however, to discount this latter figure as imports of tallow from the Argentine would keep the market here much below that price. The exceptional strength here is said to be due to lack of rendering material because of reduced consumption of beef due to high prices which have existed. At present there seem to be no indications that the market will weaken in the immediate future.

1914 July	1927 High	1927 Low	1927 Aver.		Current Market	1928 High	1928 Low
.05⅞	.10	.08½	.09½	Tanks NY lb.	.....	.09½	.09½
.....	.09¼	.08½	.09½	Manila, bbls NY lb.	.09¼	.10	.10	.09½
.....	.08⅞	.08½	.08⅝	Tanks NY lb.	.....	.08⅞	.08⅞	.08⅞
.....	.08¼	.08	.08¼	Tanks, Pacific Coast lb.	.....	.08½	.08½	.08½
				Cod, Newfoundland, 50 gal bbls				
.36½	.66	.63	.64½	gal.	.63	.65	.65	.63
.36½	.59	.59	.59	Tanks NY lb.	.62	.63	.63	.62
				Cod Liver see Chemicals				
1918	.06	.06	.06	Copra, bags lb.	.06	.06½	.06½	.06
.06½	.11	.07	.10	Corn, crude, bbls NY lb.	.....	.11	.11	.11
.06½	.09¼	.07	.08¼	Tanks, mills lb.	.09¼	.09¼	.09¼	.08¼
1916	.14	.10½	.12	Refined, 375 lb bbls NY lb.	.....	.12½	.12½	.12½
1916	.12	.11	.11	Tanks lb.	.....	.11½	.11½	.11½
.06	.09½	.06½	.08	Cottonseed, crude, mill lb.	.08¾	.09	.09	.08¾
.07⅛	.11¼	.08 1/5	.10	PSY, 100 lb bbls spot lb.	.....	.10½	.10½	.10¼
				Feb.—Apr. lb.	10.25	10.45	10.45	10.25
				Degras, American, 50 gal bbls				
.02½	.04½	.04½	.04½	NY lb.	.04½	.04½	.04½	.04½
.03½	.04⅜	do	do	English, brown, bbls NY lb.	.04⅜	.04⅜	.04⅜	.04⅜
.03½	.05¼	.05½	.05½	Light, bbls NY lb.	.05¼	.05½	.05½	.05¼
.04⅜	.07½	.06	.06⅜	Greases, Brown lb.	.07½	.07½	.07½	.07½
.05⅛	.08	.06½	.07½	Yellow lb.	.....	.07⅞	.07⅞	.07⅞
.06⅞	.10⅜	.08⅜	.09⅜	White, choice bbls NY, lb.	.....	.10½	.10½	.10½
.....	.....	.....	.....	Herring, Coast, Tanks gal.	.40	Nom.	Nom.	.40
.009	.09½	.09	.09½	Horse, bbls lb.	.09½	Nom.	Nom.	.09½
.13	.16½	.14½	.15½	Lard Oil, edible, prime lb.	.....	.15¼	.15¼	.15¼
.....	.13½	.10½	.12	Extra, bbls lb.	.....	.13	.13	.13
.09	.12½	.10⅛	.11½	Extra No. 1, bbls lb.	.....	.12½	.14¼	.12½
.09½	.13⅜	.12½	.13⅛	Off prime, bbls. lb.	.....	.13¼	.13¼	.13¼
.078	.11 4/5	.10 2/5	.11	Linseed, Raw, five bbl lots lb.	.....	10.0	10.0	10.0
.077	.11 9-10	.09 6-10	.10⅛	Bbls c-l spot lb.	.....	9.6	9.6	9.6
.076	.10½	.09	.09 7-12	Tanks lb.	.....	8.8	8.8	8.8
.....	.09¾	.09¾	.09¾	Lumbang, Coast lb.	.....	.09¾	.09¾	.09¾
.33½	.47½	.44	.46⅜	Menhaden Tanks, Baltimore gal.	.....	.46	.46	.46
.....	.90	.10	.36⅜	Blown, bbls NY lb.	.....	.90	.90	.90
.43	.70	.67	.68½	Extra, bleached, bbls NY gal.	.67	.68	.68	.67
.39	.66	.63	.62	Light, pressed, bbls NY gal.	.63	.64	.64	.63
.37	.66	.69	.67½	Yellow, pressed, bbls NY gal.	.66	.67	.67	.66
				Mineral Oil, white, 50 gal bbls				
				gal.	.80	.90	.90	.80
				Russian, gal gal.	.95	1.00	1.00	.95
.14	.18½	.14½	.17½	Neatsfoot, CT, 20° bbls NY lb.	.....	.18½	.18½	.18½
.....	.13½	.10½	.12	Extra, bbls NY lb.	.....	.12½	.12½	.12½
.....	.16½	.12½	.14½	Pure, bbls NY lb.	.....	.16½	.16½	.16½
.08	.18½	.10	.13¾	Oleo, No. 1, bbls NY lb.	.....	.17½	.17½	.17⅜
.07½	.17	.08¾	.12	No. 2, bbls NY lb.	.....	.15½	.15½	.15½
.07½	.14	.08½	.10½	No. 3, bbls NY lb.	.....	.14	.14	.14
.83	1.75	1.40	1.48½	Olive, denatured, bbls NY. gal.	1.25	1.30	1.30	1.25
1918	2.00	2.45	2.15	Edible, bbls NY gal.	1.90	2.00	2.00	1.90
.07½	.10½	.08¾	.09⅛	Foots, bbls NY lb.	.09¼	.09¾	.09¾	.09¾
.08¾	.09½	.09	.09½	Palm, Kernel, Casks lb.	.....	.09½	.09½	.09½
.07	.08¾	.07½	.08	Lagos, 1500 lb casks lb.	.08	.08½	.08½	.08
.....	.08¼	.07½	.07½	Niger, Casks lb.	.07½	.07¾	.07¾	.07½
.....	.14½	.12	.12	Peanut, crude, bbls NY lb.	.12	.12½	.12½	.12
.....	.15½	.14½	.15	Refined, bbls NY lb.	.14½	.15	.15	.14½
.....	.16½	.12½	.14	Perilla, bbls NY lb.	.13	.13½	.13½	.13
.....	.14½	.10	.12	Tanks, Coast lb.	.10¾	.11	.11	.10¾
.....	1.70	1.70	1.70	Poppyseed, bbls NY gal.	1.70	1.75	1.75	1.70
.63	1.05	1.00	1.01	Rapeseed, blown, bbls NY gal.	1.01	1.03	1.03	1.01
.....	.90	.82	.87	English, bbls NY gal.	.....	.87	.87	.87
.....	.85	.76	.80⅝	Japanese, bbls NY gal.	.82	.83	.83	.82
.06¾	.10	.09	.09	Red, Distilled, bbls lb.	.09¾	.10	.10	.09¾
.....	.09½	.08½	.08⅝	Tanks lb.	.09	.09½	.09½	.09
.....	.50	.50	.50	Salmon, Coast, 8000 gal tks gal.	.50	Nom.	Nom.	.50
.....	.47	.43	.45	Sardine, Pacific Coast tks gal.	.....	.45	.45	.45
.08½	.13	.11½	.12½	Sesame, edible, yellow, bbls lb.	.....	.13½	.13½	.13½
.....	.14	.14	.14	White, bbls lb.	.14	.15	.15	.14
.34	.40	.40	.40	Sod, bbls NY gal.	.....	.40	.40	.40¾
.....	.09¾	.09½	.09¾	Soya Bean, crude				
.06½	.....	.....	.....	Pacific Coast, tanks lb.	.....	.09¾	.09¾	.90
.....	.12½	.10¾	.12	Soya Bean, crude, bbls NY lb.	.12	.12½	.12½	.12
.....	.11	.10½	.10½	Tanks NY lb.	.....	Nom.	Nom.	Nom.
.....	.13	.12	.13	Refined, bbls NY lb.	.....	.13½	.13½	.13½
				Sperm, 38° CT, bleached, bbls				
.70	.85	.84	.84½	NY gal.	.84	.85	.85	.84
.68	.82	.79	.80½	45° CT, bleached, bbls NY gal.	.79	.80	.80	.79
				Stearic Acid, double pressed dist				
1916	.13½	.11½	.12	bags lb.	.11½	.12	.12	.11½
				Double pressed saponified bags				
1916	.14	.11½	.12	lb.	.11¾	.12¼	.12¼	.11¾
1916	.15½	.13½	.14	Triple, pressed dist bags lb.	.13½	.14	.14	.13½
.07½	.13	.08½	.11	Stearine, Oleo, bbls lb.	.....	.10½	.10½	.10½
.06	.09	.07½	.08	Tallow, City, extra loose lb.	.09	.09½	.09½	.09½
.07	.11	.08½	.10	Edible, tierces lb.	.10½	.10¾	.10¾	.10½
.09	.10¾	.08½	.10	Acidless, tanks NY lb.	.....	.11½	.11½	.11½
.09½	.12½	.10	.11	Tallow Oil, Bbls, c-1 NY lb.	.....	.10½	.10½	.10½
.....	.08½	.07½	.07¾	Vegetable, Coast mats lb.	.08	Nom.	Nom.	.08
.04½	.11	.11	.11	Turkey Red, single bbls lb.	.11	.12	.12	.11
.05½	.14	.14	.14	Double, bbls lb.	.14	.16	.16	.14
				Whale, bleached winter, bbls				
.50	.78	.78	.78	NY gal.	.78	.80	.80	.78
.52	.80	.80	.80	Extra, bleached, bbls NY gal.	.80	.82	.82	.80
.48	.76	.76	.76	Nat, winter, bbls NY gal.	.76	.78	.78	.76

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LOS ANGELES

There has been the usual dropping off of business calling for delivery during December. However, contracts are active for 1928, many more items being contracted for than at this time last year for 1927. There have been sharp advances in aqua ammonia and carbon tetrachloride for 1928 contract prices, but gylcerine still holds its low figure.

CHICAGO

General business conditions in the Chicago district are reported as being very good. Partaking of this general good feeling, business in chemicals has increased considerably since the end of December. Activity is especially noticeable in alcohol, stearic acid, red oil, carbon tetrachloride, epsom salts and caustic soda, all of which are moving well in firm markets. Collections are good and considering the fact that in most cases this is the inventory season, conditions seem quite promising.

DETROIT

Business conditions, especially in the Detroit territory, have improved greatly within the last two weeks. As an indication of this, the first week of January in Detroit saw seventeen thousand more men employed than during the previous week.

The chemical business has come in for its share of this general activity and although no individual items are reported as being especially active, all are moving well. Collections are good and all indications point to a big year for 1928.

BOSTON

Business in December, as usual, was rather quiet. Most all efforts were directed towards renewing and writing contracts for 1928. Perhaps the most active chemical was glauber salts, on which there has been extreme competition, driving the price to the lowest level that it has been for a number of years. Carload lots in bags were sold at 65c per 100 lbs. and in some cases shaded for domestic salts. Denatured alcohol business was not as good as is usual in December, due to unseasonable weather, but prices remained exceedingly firm even under these conditions.

The outlook for business in 1928 seems exceptionally good, there being every indication of better business among the woolen and worsted mills, perhaps due to the fact that during 1927, a number of mills have liquidated, leaving a much smaller number of looms to operate. The leather and shoe industry both expect

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better business. Collections through the year have been better than fair although perhaps not so good as in previous years.

ST. LOUIS

During the past month unseasonable weather prevailed in this territory, the weather most of the time being very warm and then suddenly changing to excessive cold. Generally speaking, December was a very poor month in the chemical industry, as well as in other enterprises.

Immediately after the first of the year, there was a sudden rush of business in the chemical industry but the volume was not as large as a year ago. While factors in the chemical line are looking for good business this year, it seems very doubtful whether there will be any marked improvement before March or April. Because of cold weather, calcium chloride, alcohol, glycerine, ethylene glycol and all other anti-freeze materials have been moving in relatively large quantities. Due to prevailing inactivity of the market, there have been no important price changes and collections are only fair, not being as good as low call money would warrant.

KANSAS CITY

A great deal of optimism is prevalent in this territory at the beginning of 1928. Statistics show the new wealth available in this territory from agricultural products to be over four hundred million dollars more than the previous year. This added wealth started to materialize in October and will be spent during the first half of this year. Consequently, this territory is in healthy condition to enter 1928.

Activity in the chemical line is normal, contract renewals fairly good and tonnage in reasonable volume. Denatured alcohol has been very active and large quantities consumed due to an excessive cold spell. Glycerine is weak, with withdrawals only for necessary requirements.

CLEVELAND

Since the turn of the year the feeling around Cleveland is that business has picked up considerably and the chemical trade generally is pleased with the volume of business which has been placed. There seems to be a feeling of optimism regarding business during 1928.

In response to an inquiry as to whether the paint and varnish business in this territory has shown any stimulus as yet over new Ford production, paint manufacturers in general replied in the negative. A more optimistic state of mind prevails among most concerns, however, owing to the potential increase in demand which should certainly follow from any increase in automobile production.

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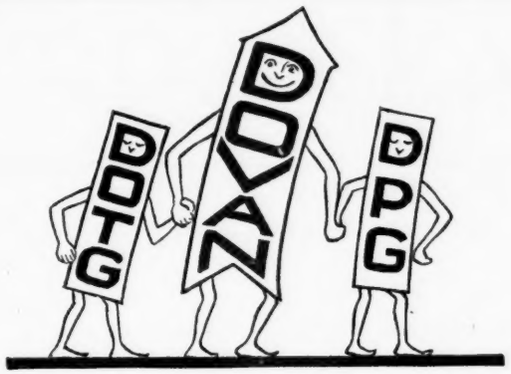

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Import and Export Summary

IN the February issue, and regularly thereafter we will publish on this page a complete accumulative record of all American imports and exports of fine chemicals, crude drugs, and essential oils. This will cover the figures of the month just past and give the total of the year to date. It will be closely itemized by products and will cover the ports of New York, Boston, Philadelphia, Baltimore, Norfolk, Charlestown, Savannah, New Orleans, San Francisco and Seattle. This inclusive record is supplied to us by the Bureau of Economic Chemistry whose announcement opposite is of pertinent interest to all readers interested in imports or exports.

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German Cartels

(*Continued from page 35*)

prevent their coercion and to maintain their freedom under certain eventualities.

In practise the majority of the decisions of the court have had reference to the influence of cartels upon the fortunes of individual members and but few decisions have been concerned with the economic influence of cartels, i. e., their influence on buyers and final consumers. In fact, it is only when a particular price policy on the face of it is particularly extortionate and obnoxious that any action would be taken. It is true that for cartels in certain basic industries, such as mining and metallurgy there is special public control. On the other hand, the final consumer is entirely unprotected against the numerous local cartels in the form of loose price agreements in small business and in retail trade.

American Attitude Compared

It is significant in bringing out the official German attitude that, when abuses appear, the criterion of official attack is derived from the fixing of prices contrary to the common interest rather than from any concern as to theoretical restraint of trade as in the United States and England. In fact the difference between the attitude of law and public opinion toward monopoly in the United States and in Germany is fundamental. The way to monopoly is easy in Germany compared with its path in the United States. In the United States there is a strong presumption in favor of free competition and the public policy of the country has been crystallized in laws which makes illegal the very types of agreements and combinations which have been permitted to flourish so freely in Germany.

Undoubtedly the German viewpoint admits of certain advantages and has an elasticity that is lacking in the United States. There is no doubt that the freedom to combine in Germany has been a tower of strength in the development of foreign markets for German products. Likewise there has been created a powerful stabilizing force to allay the periodic swings in industry. Careful thought shows, however, that the anti-trust legislation in the United States is based on the sound idea that consumers are only adequately protected when market prices are the result of the free competition of rival producers in bidding for the sale of their products. Consequently the courts have held that any combination or agreement which substantially lessens competition, or restrains or monopolizes interstate trade in any article is illegal and punishable under the Sherman law. It may very well be that the law in the United States thereby prevents many combinations and agreements which would be desirable. For example

(*Continued on page 104*)

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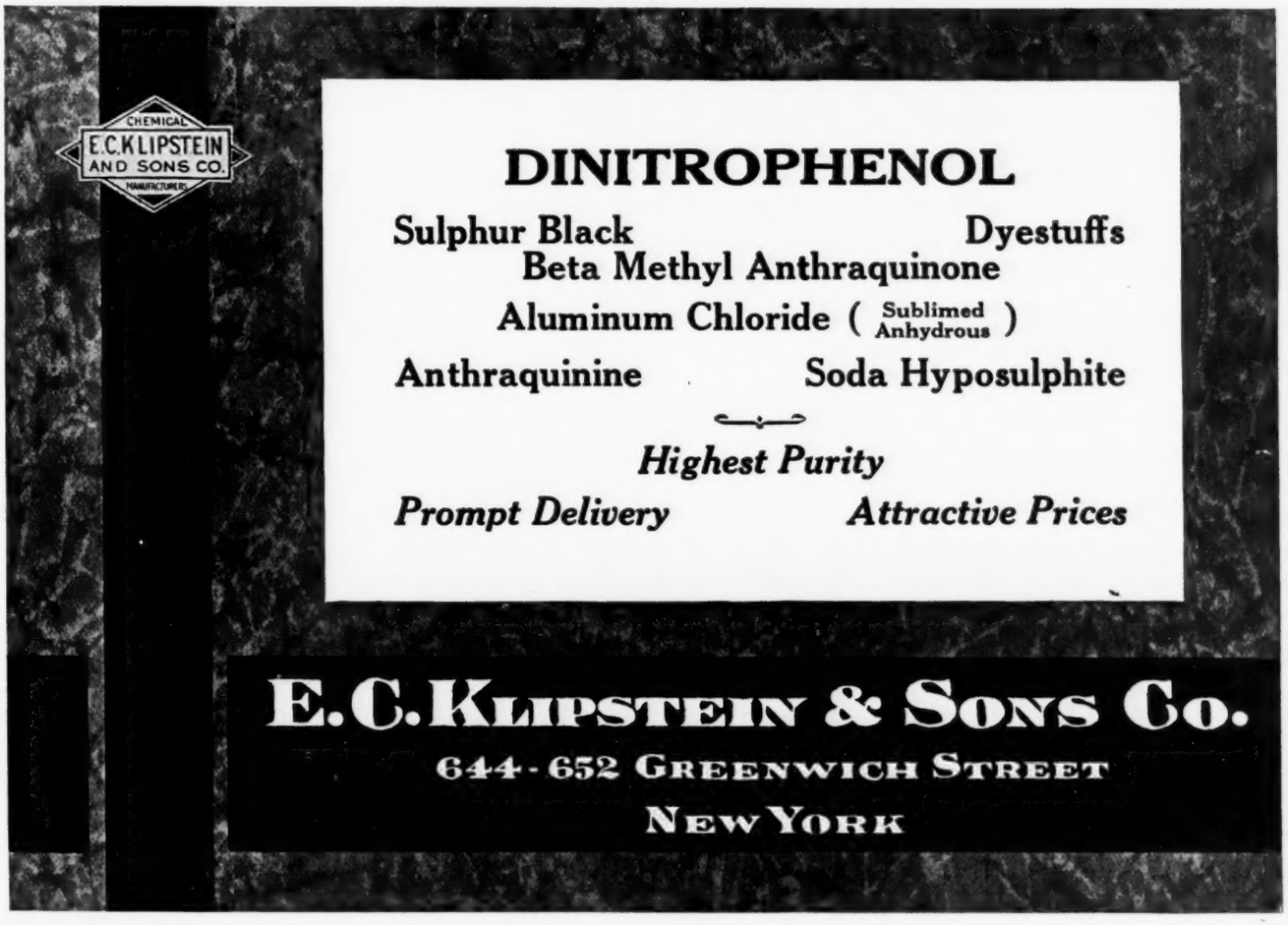

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German Cartels

(*Continued from page 102*)

we have discovered after many years of unwise policy that competition is not a sound regulatory force in the railway industry. As a result consolidations and pooling agreements are now permitted with the consent and under the control of the Interstate Commerce Commission. It is quite possible that similar action may be taken in the not distant future with respect to those industries of large fixed capital which appear to act as unfavorably to competition as did the railroads. One cannot expect, however, that the public policy in the United States will grant the freedom to monopoly that is permitted under the laws of Germany.

Financial Backgrounds

(*Continued from page 43*)

yet discovered how to set its laborers at work on the things most needed in such a manner as to prevent unemployment. It is utterly illogical for a million men to be idle and living at the expense of the rest of the population in England. A temporary solution of one problem of this sort was found in a subsidy to the coal industry, which is considered so vital to the industrial life of England that a stoppage of the industry was thought too great an evil to contemplate. Just what other solutions of similar problems can be found it is impossible to foresee but some way of avoiding unemployment and the resulting demoralization must be found.

Chemical Enterprise

(*Continued from page 50*)

both the growing plant and its seed. Fermentation processes must more and more be enlisted in the service of chemical enterprise. Synthetic rubber, at one time much heralded, will eventually arrive. And one day chemical enterprise must address itself still further to the ultimate problem of all, the problem of food supply. Synthetic fertilisers have done much, and will do more, but is it certain—I ask the question—is it certain that it is beyond the ultimate grasp of chemical enterprise to furnish that "something," whatever it be, which will eventually and surely cut down the period of time necessary for plant and vegetable growth, and thus make harvests so abundant that succeeding generations may straighten shoulders no longer burdened as are ours ? Than this, chemical enterprise, in its vision, can have no better horizon.

KESSCO PRODUCTS

SOLVENTS AND PLASTICIZERS

for the Lacquer Industry

Methyl Acetate
Ethyl Acetate
Isopropyl Acetate
Butyl Acetate, Nor. and Sec.
Amyl Acetate

Butyl Propionate,
Amyl Propionate, Nor. and Sec.
Butyl Butyrate
Ethyl Lactate
Butyl Lactate

Butyl Alcohol Sec.
Amyl Alcohol
Refined Fusel Oil

Diethyl Phthalate
Diamyl Phthalate
Dibutyl Phthalate
Dibutyl Tartrate
Butyl Stearate
Triacetine

Special Solvents

Warehouse stocks carried at all principal consuming points

KESSLER CHEMICAL COMPANY
ORANGE, N. J.

1848 1928

MAGNESIUM CARBONATE

TECHNICAL PRECIPITATED
U. S. P. PRECIPITATED
(KEASBEY & MATTISON)
NATURAL GROUND 300 MESH

Immediate or contract shipments

HAMMILL & GILLESPIE, INC.
225 Broadway
New York City
Chicago Representatives
A. C. DRURY & CO.
106 E. Austin Ave. Tel. Central 2349

GOOD CHEMICALS
FOUNDED 1848
JAMES GOOD
Philadelphia U.S.A.

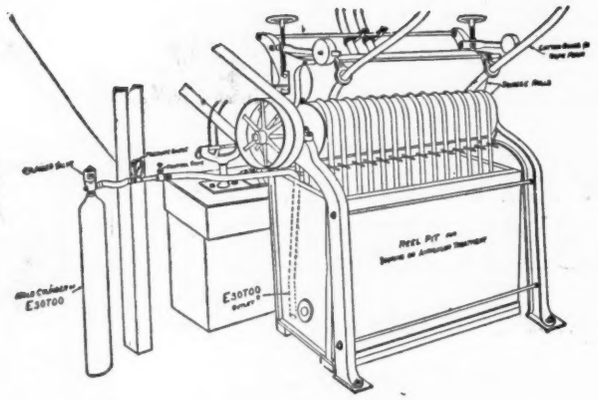
LIQUOR
CRESOLIS
COMPOSITUS
U. S. P.

and
approved

SAPONIFIED CRESOL SOLUTION

■

JAMES GOOD, INC.
2115 East Susquehanna Ave.
PHILADELPHIA



Practical Research

for your Own Plant Problems

THE above apparatus was especially designed by our chemist and engineers for antichlor treatment of textiles with Esotoo Brand, Liquid Sulphur Dioxide. We have patented special apparatus for the manufacture of hydrosulphites. Our Research Staff has assisted in solving chemical problems, in cutting costs, improving operations in hundreds of plants in many different industries. Call on them freely without any incurring obligation or expense on your part.

If interested in SO_2 write for our booklets on the chemical and physical properties of this interesting and widely useful chemical. They may suggest new processes or new products for your plant in the practical development of which our Research Department stands ready to assist you.

VIRGINIA SMELTING CO.
Largest American Producers SO_2
F. A. EUSTIS, *Secretary*
Boston New York Norfolk

Inner Workings Cartels

(*Continued from page 40*)

penalty is paid; not because loyalty to the cartel is demanded, but because a mathematical calculation is put to work so that reduced cost of production may be made an object and a possibility of profit; since increased output, if attempted, may bring a power cost advantage, which even after paying the penalty leaves a profit. The penalty nevertheless acts as a stabilizer to the industry as a whole.

In any case of quota setting for any organization, change of quota must be arranged for as contingency arises. The international cartel recognizes the instant right of a cartel member to have its quota raised if its own national demand increases. Thus the cartel member is not handicapped by international membership when its own local efforts boom trade. It gives elbow room to enterprise. Countries producing cartellized articles of unfinished types of industrial goods usually have highly developed finishing industries also, and low costs of production. The plan thus hinders, as it should, the creation of "mushroom" finishing industries in countries where the cartellized goods are not produced, but are imported.

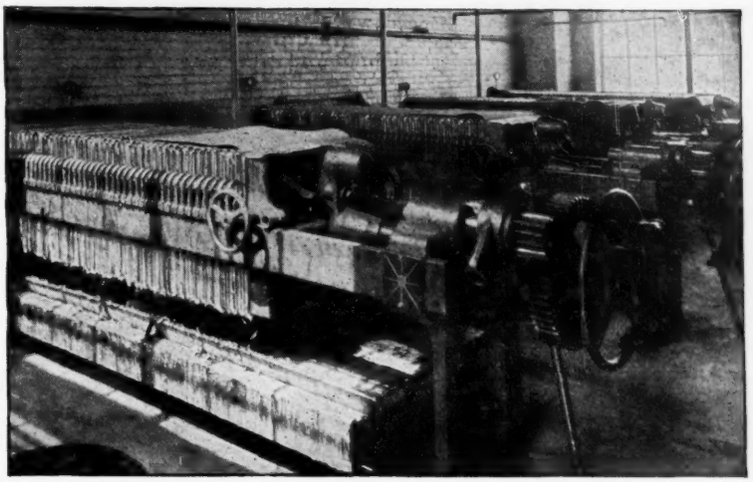
Naturally the difficult, crucial price situation is dependent largely on the relative importance of the cartellized production in the markets, as compared with the production by others outside the cartel; particularly in the field of raw materials and semi—or quarter manufactured goods. The big job, the technique of success, in this matter, lies in cartel agreement rigidly to observe certain minimum prices. If then the most supplies of raw materials are inside the cartel, then others outside have to pay higher prices than before, while at the same time the difference between the foreign and home prices of these materials is reduced or eliminated altogether. The mutual "enemy," then,—the foreign finishing industries, experience increased costs, which counterbalance such advantages as they may have of lower labor cost, etc. Thus success in price control is widely beneficial, not only increasing their power to compete, but giving them easier access to foreign markets; often lessening tariff tension.

The great new chemical cartel, operating in dyestuffs and fertilizers, and comprising France as well as England and Germany, which had previously combined, is now organized, after many long delays. There is reason to believe that the Germans have agreed to withdraw from the French field altogether when export trade develops; the German chemical trade being still 50% below pre-war volume.

The agreement became effective January 1, 1928, and England's great dye interests were the last to sign. Swiss dyestuff interests are also negotiating for entry. The vital quota divisions for production,

(*Continued on page 108*)

More than 250
SHRIVER FILTER PRESSES
Are Used By One Chemical Manufacturer



One of the largest manufacturers of chemicals in America found that Shriver Filter Presses meet—most efficiently and economically—the exacting requirement of nitro-cellulose lacquer manufacture. Already more than 250 presses have been installed in this company's various plants; and other leading companies are increasing their orders.

There can be only one reason for this preference for Shriver Filter Presses--saving in time and materials and a more perfect product. It will cost you nothing to submit your own filtration problem to our engineers. They will gladly help you without obligation. This is part of T. Shriver & Company's service.

T. SHRIVER & CO. 856 Hamilton St., Harrison, N. J.

BLACK
GALVANIZED
TINNED

HEADLOCK *Nesting* CANS
(5 to 55 GALLONS CAPACITY)

Just right for moving stock, such as liquids, around the factory
No Spilling—No Wasting of materials
No evaporation of contents
Water-tight and Indestructible
Suitable for any liquid, paste or powder
Easily cleaned—Quickly opened or closed
Interchangeable Lid

An exceptionally strong Shipping Container
Will stand rough handling—No casing required
Will nest for return shipment

Capacity	Diam.	Height	Weight	Price BLACK
5 gals.	12½″	13″	19 lbs.	$1.75
10 gals.	14½″	26″	27 lbs.	2.25
20 gals.	20 ″	26″	42 lbs.	4.50
30 gals.	21 ″	34″	65 lbs.	6.00
55 gals.	25 ″	35″	80 lbs.	7.00

Prices of Galvanized and Tinned Nesting Cans on Request

JOHN TRAGESER STEAM COPPER WORKS
Grand Avenue Maspeth, L. I., N. Y.

A Standard for Seventy Years

Cooper's C. P. Acids

In bottles and carboys

Hydrochloric
Nitric
Sulphuric

CHARLES COOPER & CO.
194 Worth Street New York, N. Y.
Established 1857 — Works: Newark, N. J.

STEARATE of ALUMINA

STEARATE of ZINC

J. U. STARKWEATHER CO.
705 Hospital Trust Bldg.
Providence, R. I.

Here You Have It
The Latest Model
Bradley
STENCIL MACHINE

Graduated Table, Handle Adjustable to two positions, Rapid Stroke and Other Features. Cuts 1/16" and 1/4" Letters.

Our GIANT MACHINES Cut 1 1/4" and 1 1/2" Letters for Export Shipments.

Bradley Oil Board and Stencil Papers.
Bradley's Two-In-One Stencil and Marking Ink.
The Bradley Ball Stencil and Marking Pot.

Write for Samples and Prices

A. J. BRADLEY MFG. CO.
102 BEEKMAN STREET NEW YORK

Dissosway Chemical Co., Inc.
Manufacturing Chemists
55-63 ECKFORD STREET
BROOKLYN, N. Y.

Cadmium Chloride & Sulphate
Copper Chloride, Lactic Acid U. S. P.
Potassium Acetate, Rochelle Salt
Ammonium and Potassium Oxalate
Strontium Lactate Ethyl Lacteta

Inner Workings Cartels

(*Continued from page 106*)

the formulation of which have taken a long time, are: France 12%, Germany 75%, Great Britain 13%. As in other international cartels, as just explained, the home markets are reserved; and in addition there is agreement to purchase from other members such dyestuffs as are not made nationally. The exchange of process information is also provided for between France and Germany; but in this England does not agree. It is also stipulated that colonies and protectorates are to be regarded as export markets. England thus yields a very important point for her. The French quota is divided, according to the best authority, as follows: Kuhlmann, 60%; St. Denis, 30%; Kuhlmann Associate, St. Claire du Phone, 10%.

The matter of price methods is of course the most delicate of subjects, and no method has as yet any official confirmation. If the experience of other cartels is a guide, there will be rigid agreement among the chemical cartel members, to observe indicated minimum prices. A unit world sales organization is to be used in dividing the world market. One sales office for the entire cartel organization will be established at each important center throughout the world. Cost of selling and distribution will be greatly cut in this way. One line of ships, for instance is to be used exclusively. The European market will unquestionably be divided by agreement between the member countries; the exact percentage divisions of the market having at present only tentative form, and therefore still kept secret. The Belgiun chemical organizations are also expected to be brought into the circle. The setting up of a unit sales and distribution organization all over the world by the cartel will require until June, 1928, undoubtedly, and the American chemical interests will not likely feel the impact of its competition until then.

Soap and Oil Cartel Organization

The new international soap and oil combine formed by Jergens, Ltd. and the Dutch Van den Berghes with interests in many countries, is another new cartel of very large proportion, with a capital of many millions of pounds sterling. The working plan for this is the maintenance of full individuality of both companies, but an agreement on quotas for different countries. Centralized buying will be applied, and some factories of both companies will be scrapped. Unit sales offices will not be attempted.

A certain degree of uniformity in method of production and labor conditions generally is an important prerequisite to the formation of certain types of international combinations: common price policy, for instance; efficient and up-to-date methods for backward plants developed. The establishment of common

(*Continued on page 110*)

Sulphuric Acid

60° and 66° Commercial
66° Textile Clear Electrolyte

Prompt Shipment—Any Quantities
In Tank Cars, Drums or Carboys

Copper Sulphate

Granular, Large, Medium and
Small Crystals

SOUTHERN AGRICULTURAL CHEMICAL CORP.

General Sales Offices

ATLANTA : : 621-625 Grant Building : : GEORGIA

In the year
1756
Benjamin Franklin said:

"Love your enemies for
they tell you your faults"

"The customer is never to blame," so said the great merchant, John Wanamaker. We have ever invited our guests to tell us our faults—we welcome constructive criticism as well as your co-operation; so may your hotel become more homelike.

The **BENJAMIN FRANKLIN** *is the newest and most beautifully furnished hotel in the midtown section of Philadelphia.*

THE BENJAMIN FRANKLIN
CHESTNUT AT NINTH STREET
PHILADELPHIA

HORACE LELAND WIGGINS, Managing Director

1200 Rooms
Each With Bath

UNITED HOTELS

RATES:
$4 Upward

THREE ELEPHANT
BORAX
99.5 % Pure

Let us protect you on both quality and price. Analysis supplied with every shipment. We will be glad to quote you. We also make Boric Acid, guaranteed 99.5% pure.

Write us to-day

American Potash & Chem. Corp.
Woolworth Building, New York City

Wm. S. Gray & Co.

342 MADISON AVE.,
NEW YORK

Vanderbilt 0500 Cables: Graylime

Acetate of Lime

Acetone

Denatured Alcohol

Methanol

Magnesium Carbonate

Formaldehyde

Magnesium Oxide

Phenol

Whiting

Chlor Phenols

Benzol

Sulphuryl Chloride

Thionyl Chloride

Inner Workings Cartels

(*Continued from page 108*)

interest among employers and owners is essential to facilitate the formation of international cartels.

A remarkable cartel between producing watch parts factories was formed some years ago, to which three Swiss, three Alsatian and three Austrian factories belonged. They also had a factory in Geneva and in Japan and produced 600,000 crystals—the entire world production. It operated as a price cartel and dictated production absolutely. It had little difficulty because it was in complete control of the market.

Another cartel with headquarters in Paris consisted of 40 enterprises and had 61 factories in Germany, Switzerland, France, Holland and Austria. Its purpose was to regulate quality of product.

An interesting example of a single large enterprise operating in many countries exists in the glue industry. One dominating company in Germany established a purchasing force and created branch and sales offices in several other countries. It also controlled the Austrian glue trust. In order to prevent underbidding in foreign countries, a European glue syndicate was formed and 17 European countries had representation.

This is an era of keen competition in international trade, in which giants are matched against giants. But rather then engage in destructive economic warfare, the solution is the regulation of competition, especially in neutral markets, and these international cartels are growing rapidly for this purpose.

Tariff And Coal-Tar Chemicals

(*Continued from page 54*)

Unfortunately, this right is limited to downward revision of the rates in paragraphs 27 and 28. The President should have the power to modify these rates in either direction.

Whenever the coal-tar chemical industry has had adequate protection, the domestic consumer of its products has also had the advantage of keen domestic competition. A low tariff with its consequent rampant foreign trust will be a menace to the domestic consumer as well as to the domestic producer. A high tariff with its consequent keen domestic competition will always be an advantage.

The possession of a thriving coal-tar chemical industry, so essential to the economic welfare of our nation, may be had at the slight cost of ample protection.

Hercules Powder Co. cuts production of naval stores at its Brunswick, Ga., plant 20% for 1928, in accord with recent movement among naval stores producers to remedy weak markets due to overproduction.

BORAX *and* BORIC ACID

Guaranteed 99½ to 100% Pure

Crystal - Granulated - Powdered

REFINED and U. S. P.

Borax Glass

Anhydrous Boric Acid

Manganese Borate

Ammonium Borate

Sulphur

Refined - All Grades

PACIFIC COAST BORAX CO.

100 William St., New York

Chicago Los Angeles

Barrett Standard

POLAR

NAPHTHALENE

Flake . . . Ball

The Barrett Company

B

40 Rector Street New York, N. Y.

C J W Co

ANTIMONY SALT

Powder form 66%

(TARTAR EMETIC SUBSTITUTE)

Our own manufacture

JOHN C. WIARDA & CO.

Incorporated

HOWARD B. BISHOP, President

Manufacturing Chemists

262 Freeman Street

Brooklyn, N. Y.

Cable Address—Fluorine, Brooklyn

Tel. Greenpoint 3090

John D. Lewis

Established 1866

Providence, R. I.

New York 11 Cliff St. | *Works: Mansfield, Mass.* | Boston 40 Central St.

IMPERIAL BRAND

Manufacturer of

TANNIC ACID

(*all grades*)

TARTAR EMETIC

ANTIMONY LACTATE

ANTIMONY SALTS

Alfred W. Jenkins Schuyler L. Parsons
William A. Stopford

PARSONS & PETIT

Established 1857

63 Beaver Street
NEW YORK CITY

Selling Agents

The
Freeport Sulphur Co.

The
Sulphur Export Corp.
in Mexico

The
Salzbergwerk
Neu-Stassfurt
in United States
for Carbonate of Potash

Emil Fog & Figli
of Messina, Sicily
for Essential Oils

Distributors for

The Diamond Alkali Co.

Acids	*Blue Vitriol*
Arsenic	*Caustic Soda*
Pig Lead	*Sulphur Oils*
Soda Ash	*Caustic Potash*
Castor Oil	*Nitrate of Soda*
Glycerine	*Phosphate Rock*
Saltpeter	*Carbonate of Potash*
Empty Drums	*Sodium Bicarbonate*
Olive Oils	*Sulphate of Ammonia*

Crude and Refined Sulphur

Powder Manufacturers' Supplies
and Fertilizer Materials of All Kinds

Polish Chemical Industry

(*Continued from page 60*)

one of the largest distillaries in Europe for hardwood. Acetic acid, wood spirit, formaline, acetone and other products are produced. Poland's forests will aid enormously to secure a firm foothold in industry.

Among other branches we might mention such industries as glue, rubber, perfumery, cosmetic, photographic plate, etc., which are important to Poland and doing much to improve the position of our country and world trade.

In the chemical industry co-operation of science and technique is necessary for development. There are several institutions in Poland especially devoted to this end. Noteworthy among the best is l'Institut d'Etudes Chimiques, founded by the president of the Republic, Professor Ignace Moscicke, who displays a great activity for practical research. Splendid studies on the refining of petroleum have been made.

In Poland chemical enterprises are grouped together in the Union de la Grande Industrie Chimique, an institution which has as its object the defense of the chemical industry. It is composed of various committees for investigating different problems such as tariff, labor, transportation, etc. In this way they have succeeded in improving production in many enterprises by decreasing manual labor, general expense, and overhead.

In spite of the political tendency since the war hindering the development of the chemical industry in Polish territory, in spite of the ruin caused by the war, in spite of the difficulties of organization in a country which in itself in not completely organized, we believe that the chemical industry is in a most advantageous position and presents the possibility of enormous development.

Tacoma Electrochemical Co., Pennsylvania Salt's new $1,000,000 subsidiary, plans to begin production of liquid chlorine and caustic soda during the Spring. Construction of the company's plant at Tacoma, Wash., now in progress, and according to the officers, "there is a present demand in the Tacoma territory for liquid chlorine sufficient to warrant the establishment of this plant, and with the Tacoma plant in full operation, the combined organization will be the largest producer of liquid chlorine in the world."

Vanadium Corporation of America after three years of extensive work in its laboratories, announces its entry into the field of chemical technology, at the same time placing upon the market something over 100 chemical products. These chemicals are compounded from the elements vanadium, tungsten, molybdenum, chronium, silicon, titanium and other rare and semi-rare elements.

Pennsylvania Sugar Co., Philadelphia, takes over sales of its own alcohol, previously distributed by Lowry & Co., New York. A. K. Hamilton, formerly with Lowry & Co., is in charge of sales and distribution.

USE NATIONAL INTERMEDIATES

ANILINE OIL
BENZIDINE BASE
BETA NAPHTHYLAMINE
G SALT
H ACID
MYRBANE OIL
NITRO BENZENE
SODIUM METANILATE
SODIUM NAPHTHIONATE
SODIUM SULFANILATE

NATIONAL SPECIFICATIONS ENSURE UNIFORMITY

Intermediates Division
National Aniline & Chemical Co., Inc.
40 Rector Street, New York, N. Y.

BEAR BRAND PHOSPHATE PRODUCTS — TRADE MARK

CHEMICAL DEPARTMENT

WMW CHEMICALS

MONO ACID CALCIUM PHOSPHATE
DI CALCIUM PHOSPHATE
Technical and Pure
TRI CALCIUM PHOSPHATE
Technical and Pure
MONO AMMONIUM PHOSPHATE
Tech., N. F., C. P.
DI AMMONIUM PHOSPHATE
Tech., N. F., C. P.
PHOSPHORIC ACID
85% U. S. P. 75% Pure-Tech
65% Sulphate free 50% Pure-Tech
PHOSPHORIC ACID PASTE
TRI SODIUM PHOSPHATE
POTASSIUM PHOSPHATE MONO-BASIC
SODIUM AMMONIUM PHOSPHATE-CRYSTAL
ACID SODIUM PYRO PHOSPHATE
BONE ASH—ALL GRADES
PRECIPITATED BONE PHOSPHATE

WILCKES MARTIN WILCKES CO.
135 William St., N. Y. C.
FACTORY: Camden, N. J.

NAARDEN
CHEMICAL WORKS

COUMARINE

NAARDEN (Holland)

P. B. 2 Bussum
Cable Address: Chemische Bussum

MAIL TO-DAY

That 4 O'clock Fatigue

The dynamic men of the Latin Countries have for years, in order to keep physically fit, been using

KOLA ASTIER

The Famous French Derivative

Refreshing—Strengthening—Invigorating

Not a Patent Medicine but A Pure Food Product

In Granular form and taken like sugar in Tea, Wine, Water or in its natural form.

The African natives discovered its wonderful sustaining power in the use of the Kola nut for endurance on trips of conquest, covering hundreds of miles with no other food or drink. Absolutely non-habit forming. KOLA ASTIER is now used by Athletes everywhere in all tests of endurance.

Boxing, Swimming, Cycling, Rowing, Baseball, Football, Running, Etc.

FREE Interesting booklet "More precious than Rubies" and our Guaranteed Trial Offer

GALLIA LABORATORIES
532 Broadway
New York

Send THIS COUPON for FREE BOOKLET

Name.....
Address.....
City.....*State*.....

BUTYL

BUTRYATE

98/100%

BUTYRALDEHYDE

97 1-2%

METHYLENE CHLORIDE

TAMASOLS

PLASTOLS

METHANOL

BUTYL ACETATE

85%

KUTTROFF, PICKHARDT & CO., Inc.

1150 Broadway, New York

NEW YORK

Third Factor In Sales

(Continued from page 38)

prospects with the features of service a chemical firm has to offer, and the advantages which it believes cannot be obtained elsewhere. When the salesman calls, it is unnecessary for him to cover a vast amount of ground in his sales arguments. He can concentrate upon the points which experience has shown can best be handled by personal representation. Buyers in general recognize that proper advertising conserves their own time also.

Chemical advertising has another function. It is an aid in discovering new uses for products, a service it has long performed in the consumer field. This fact was brought home recently to one of our clients when he received two inquiries from fields he had never suspected of using products such as he manufactured. Their new markets are well worthy of cultivation. Their existence was revealed through advertising.

Nevertheless good chemical advertising is comparatively scarce. Advertising undertaken "to keep our name before the public" is one thing—for it to be effective is another. Advertising, though not old in years, has gone a long way toward becoming a scientific procedure. It is unfortunate, and particularly so for firms which do not recognize the fact, that advertising appears to be a simple thing to prepare. To the uninitiated it seems easy to jot down a few thoughts which the trade ought to know about the So-and-So Chemical Company. The man who wrote this hypothetical advertisement may be a wizard at convincing the buyer with spoken words. But it doesn't follow that he can express the same thoughts on paper convincingly. The human voice and the printed page have only one fundamental in common, that of being addressed to an audience. Each has its limitations and superiorities, and must be handled accordingly. If advertising is lacking in the flexibility and intonations of the human voice, it has devices of its own for attracting attention and interest in the audience. To those outside the advertising profession the correct use of illustration and the potentialities of type and printing processes are mostly sealed books.

The growth in volume of advertising compels respectful attention from a common sense stand. The rising recognition of advertising's value to every industry, including the chemical, is indicative of further increase. Even the firm which states that it does not believe in advertising immediately plans a campaign when its nearest competitor appears in print, thereby unconsciously voicing belief in the power of advertising.

Many chemical companies are using advertising to good advantage. Members of several firms who feel that benefits from chemical advertising are distinctly traceable have extended the courtesy of being quoted on the subject.

George F. Hasslacher, of Niacet Chemicals Corporation and The Roessler & Hasslacher Chemical Company, states that to him, "The most effective advertising that a chemical house can do seems to fall into two classes.

If the house is well established and has served the industry for some time, it can in its advertising reflect the reliability and trustworthiness of the company. The second main helpful advertising that can be done falls into the category of new products. In mentioning the new products and giving a short description of their properties, interest is aroused in the technical departments of the industries which might use the articles. That both kinds of advertising mentioned must be presented in neat, orderly and attention arresting array is understood."

After stating that it is his belief that good results will be obtained only when the preparation of chemical advertising is entrusted to specialists in this form of advertising, R. I. Wishnick of Wishnick-Tumpeer, Inc., goes on to say, "We feel that the results obtained in this manner are very gratifying for the following reasons:

"First—it has enabled us to reach certain industries that we ordinarily would never call on through our regular salesmen. It is our practice to have our salesmen call on certain special industries who are known users of our commodities in a big way, but there are, however, special industries that we would probably never reach except through attractive advertising. The second reason for continuing our advertising is the increased morale it has given our selling organization in that they seem to have more confidence in soliciting new business because the advertising has paved the way for their visit.

"We do feel, however, that for chemical advertising to pay, it should be done through a recognized agency specializing in handling chemical advertising. We have found in the past by attempting to handle advertising ourselves, that it has not brought us the results we can expect through our present arrangement."

H. S. Doty, president of the Dovan Chemical Corporation, believes that advertising can be used to arouse interest in an otherwise uninteresting sales line. The vice-president of General Dyestuff Corporation, Dr. B. A. Ludwig, says, "What advertising we do is generally to gain good will." One client of ours advances the theory that his advertising tends to affect adversely or break down the morale of competitors' salesmen and competing organizations. We prefer to think of advertising however as a constructive, not a destructive, force.

Father Time keeps plodding along in his inimitable way. Some companies feel that he cannot be hastened; that only the passing of the years can put them among the leaders. As examples they point to firms which have arrived at success, without advertising. Yet with proper advertising these successful firms could have turned the clock forward. They could have reached their positions more quickly and more easily. And it is conceivable also that, successful as they are, their achievements would be greater with the help of advertising.

Big opportunities in advertising are now open to the chemical industry. Moreover, they are opportunities which discerning men in this industry and the advertising profession believe will not exist five years from now. Any one who has only casually observed chemical advertising knows that its growth has been continuous, each year maintaining a consistent increase. The volume is still at a stage where companies now adopting a consistent program of advertising will profit greatly. The cost will be less also.

WITCO

Buy Direct and Profit Directly

MANUFACTURERS alert to reduce the costs of production will find that *buying direct* is the initial step. It is obvious that material economies are thereby effected.

This advantage is secured in WITCO products. They are either directly manufactured by us, or we are exclusive sales agents for them. The further advantage of securing quality of *known reliability* is an added inducement to use WITCO materials.

Rubbermakers Sulphur	Burgundy Pitch
Magnesia Carbonate	Rosin Oil
Eloset Magnesium	Lithopone
Cadmium Yellow	Palm Oil
Hard Hydro Carbon	Lead Oleate
Chemical & Pigments	Blanc Fixe
	Earth Colors

Buy Direct and Profit Directly

WISHNICK-TUMPEER, Inc.
MANUFACTURERS AND IMPORTERS
NEW YORK, 251 FRONT ST.
CHICAGO - CLEVELAND

AMER SOL

PRODUCTS

---Controlled, Tested and Proven for

Quality and Uniformity

AMER-SOL PRODUCTS are made in accordance with the highest scientific standards—backed by the resources, plant equipment, and delivery facilities possible only with a large, highly-developed, country-wide organization.

The *completeness* of the AMER-SOL line offers definite advantages in *centralized* buying. *All* of your requirements in this line can be supplied by AMER-SOL. And every AMER-SOL Product is offered on the basis by *controlled, tested* and *proven* QUALITY and UNIFORMITY.

Your orders and inquiries invited. Prompt and courteous attention. Dependable deliveries. Satisfaction assured.

AMER SOL

Industrial Alcohol

(All Formulas)

Absolute Ethyl Alcohol
Amyl Acetate
Amyl Alcohol, Refined
Butyl Acetate, Normal
Butyl Propionate
Dibutyl Phthalate
Diethyl Phthalate
Cotton (Nitrocellulose) Solutions
Ethyl Acetate
Fusel Oil, Refined
Collodion
Ether Pure and Technical
Ammonium Iodide, U. S. P.
Potassium Iodide, U. S. P.
Sodium Iodide, U. S. P.
Tincture of Iodine, U. S. P.
Iodine, Resublimed
Nitrous Ether
Sodium Sulfide

AMERICAN SOLVENTS & CHEMICAL Corporation

Executive Offices: 285 Madison Avenue, New York

PLANTS:

Harvey, La. Everett, Mass. New Orleans, La. Agnew, Cal. Albany, N. Y.

Sulfur Statistics

(*Continued from page 32*)

industry the higher Freeport stock has gone, the stronger it has become.

The Texas Gulf Sulphur Co., succeeding the Gulf Sulphur Co. of S. W. Mudd and Bernard Baruch, came into operation in 1919. This company has recently entered into a contract to exploit the new sulfur dome of the Gulf Oil Co. on a 50-50 share of the profits. This alliance brings them into direct contact with the Mellon interests, currently reported to own as high as 90% of the petroleum company's stock. Upon the basis of the probable profits from this contract with T. G. S., the stock of Gulf Oil has risen sharply; 4,414,680 shares having been recently sold on the outside market at 114. In this case Wall Street is obviously "discounting the future," and the rise of both sulfur producers' stock during the year just past is often in financial circles referred back to the basic statistics of the sulfur market.

An interesting—and illuminating side-light on the sulfur statistics is being furnished by the State of Texas which is attempting to have the "average market value" of sulfur mined by the two companies revalued in the courts for tax purposes. When the Texas occupation law was passed five years ago, difficulty was encountered in arriving at a satisfactory basis for the tax on sulfur. Eventually, a valuation of $10 per ton was agreed upon by the controller and the Texas Gulf Sulphur Co. and the Freeport Sulphur Co. The companies have paid their taxes promptly on that basis, and they proffered them to the present controller, S. H. Terrell in due season. He, however, contends that the basic valuation is too low in view of the fact that quoted prices have ranged from $15 to $19 during the term the tax law has been in effect.

The controller claims that the two sulphur companies owe the State almost $1,500,000 in back taxes, interest, and penalties. The companies ask that the interpretation of the law be submitted to the courts to determine at what point in the production or shipping of sulfur the tax applies.

According to the reports returned by the controller, the Texas Gulf Sulphur Co. produced 280,470 gross tons of sulfur in the third quarter of this year, on which the tax was computed at $56,094. The Freeport Sulfur Co., in the same period, reported gross production of 230,350 tons, taxable at $46,070.

National Fertilizer Association wants to change name of "acid phosphate" to "superphosphate" because many farmers, especially in territories where commercial fertilizers are just beginning to be used, have an inherent fear of all things acid, making them hesitate to use this material.

Alcohol producers notified by Dr. J. M. Doran, Commissioner of Prohibition, that production to July 1928 must not exceed 40% of the quantity of alcohol authorized to be produced during the entire year.

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Aluminum Sulphate—Iron Free
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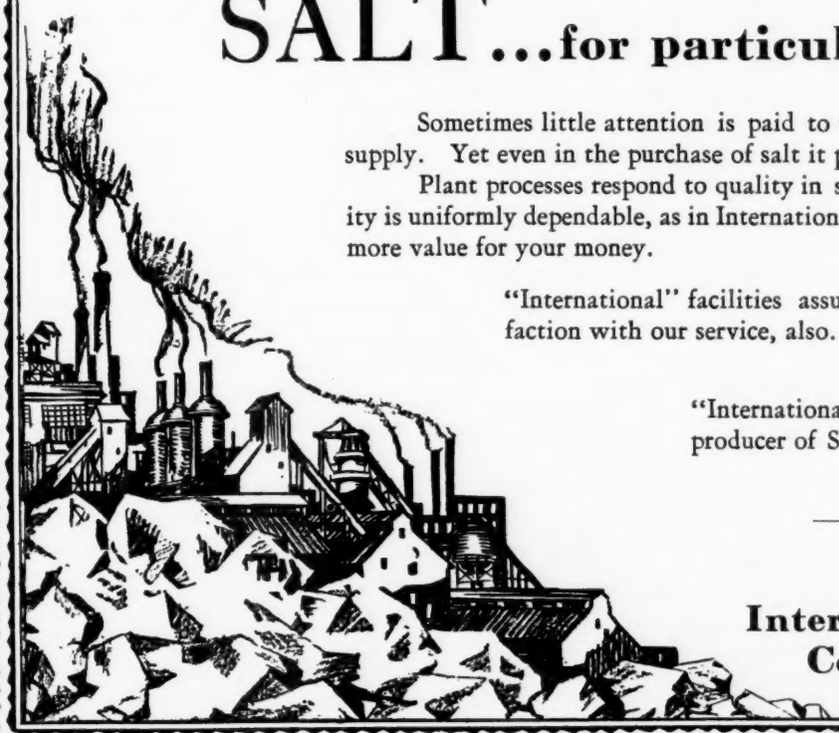

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Glenmore 7318-7319 BROOKLYN, N. Y.

Conveying Chemicals

(*Continued from page 46*)

economically handled by pneumatic conveying than any other method. It is really quite hard to set down a specific limit as to size or weight, because the smaller sizes of coal, crushed stone, nuts, pebble phosphate, ores, nor nuts are as easily handled as sands, finely divided chemicals and other lighter materials. This method is also extremely flexible as to capacity, covering as it does a range from the small vacuum unit for cleaning dust from the floor of mills to a unit handling 300 tons of material an hour. The following haphazard line of materials will give you an idea of the great variety that can be handled by pneumatic conveying:

Abrasives	Fertilizers	Pigments
Ashes	Flour	Poisonous Materials
Cement	Ground Bone	Salt
Clay	Gums	Sand
Cocoa Beans	Gun Cotton	Seeds
Coal	Insecticides	Soap
Coke	Lime	Spices
Concentrates	Malt	Sugar
Copra	Metals	Starch
Cotton	Nuts	Sulfur
Cotton Seed	Ores	Tan Bark
Crushed Stone	Oxides	Wood Chips
Dyes	Phosphates	Wood Pulp

Now we come to the other advantages which result from the use of pneumatic conveying. We have seen that you can locate your conveying pipe line wherever you want to in your own particular plant layout. In many chemical plants raw materials such as soda, lime, pigments, salt, ores, intermediate materials, etc. are used at more than one point in the process. With no other system is it possible to distribute these materials as economically and dependably as by pneumatic conveying. You might receive an entire boat load of soda-ash in bulk, and by use of the vacuum system unload and convey it to a central storage point and distribute it when and as needed directly to the points of use by a pressure system. Or you may use a combined pressure system and vacuum system for unloading, storing in part, and distributing in part at the same time the unloading takes place.

Now as to special applications: You can use a vacuum system with a portable discharge device by mounting the discharge unit on a narrow gauge rail track. This enables you to use one independent unit for a number of materials received by rail, truck or ship at regular or irregular intervals. One conveying line and suction nozzle will feed each material as received to the discharge end of the system, and the discharge end can be moved to the proper storage bin or point of use for the discharge of that particular material. In many plants raw and intermediate materials are moved in intermittent or regular installments from one department to another. A

(*Continued on page 120*)

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Conveying Chemicals

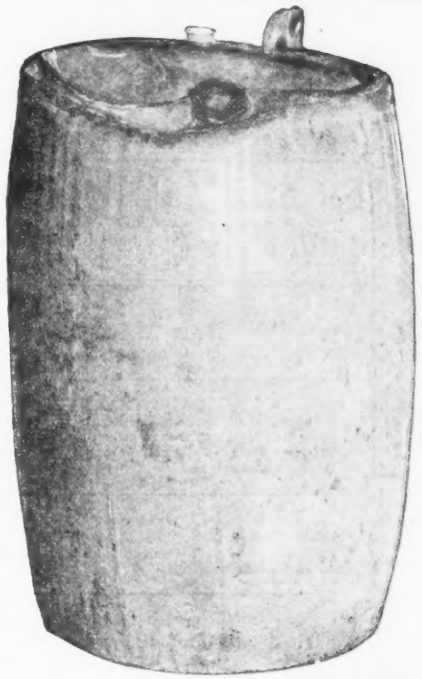
(Continued from page 118)

vacuum system with portable discharge together with the installation of adequate terminal points and switches in the conveying line for attaching suction nozzles at the points where materials are to be picked up is well adapted to this problem, particularly if the materials are dust forming or subject to contamination. The portable discharge unit is moved to the department to which any particular material is to be delivered, and the suction nozzle picks up the material from the bin where it is stored or produced and delivers it exactly where it is needed without spillage or waste. A portable pressure system is also applicable to this problem where the material is not dusty, injurious or poisonous.

Then there is the pressure system with a portable feeder. A portable hopper with a rotary feeder used in connection with the pressure system meets many other problems. Conveying lines are provided with adequate terminal points and switches to solve the distribution problems of a regular or intermittent schedule of supplying various departments with raw and intermediate materials from storage piles or bins.

There are also combination types in portable form for many handling problems. You can have a portable unit in which a combined vacuum discharge system and pressure feeding system are available. The suction nozzle of the vacuum end of this combination picks up the material from storage piles or any other point, delivers it to the pressure end of the system, and it is then moved to a point of storage, use or loading as required. The portable unit is moved direct to the point of pick-up and thus is enabled to maintain a steady or irregular schedule of pick-up and distribution without dust, spillage, waste, contamination or excessive manual labor costs. This combination is particularly adaptable to the unloading and discharge problems of a very large plant where the material to be unloaded is not always in the same position. A phase of this problem is the maintenance of storage piles or bins of the same or different materials where the large amount of material received makes necessary two or three points of storage for each material. By locating the portable unit close to the storage bins and moving it along its track as the occasion requires, discharge is obtained where it is necessary. In this case, of course, the suction nozzle by suitable extension of the pipe lines for the vacuum end of the combination, can be maintained stationary at the handling end.

Another point is the easy way in which automatic weighing equipment can be installed in connection with such combinations, so that an accurate and automatic control of the weight of the material received and distributed is readily maintained. Of course, this automatic weighing feature is equally adapted to any stationary or portable pneumatic conveying system.



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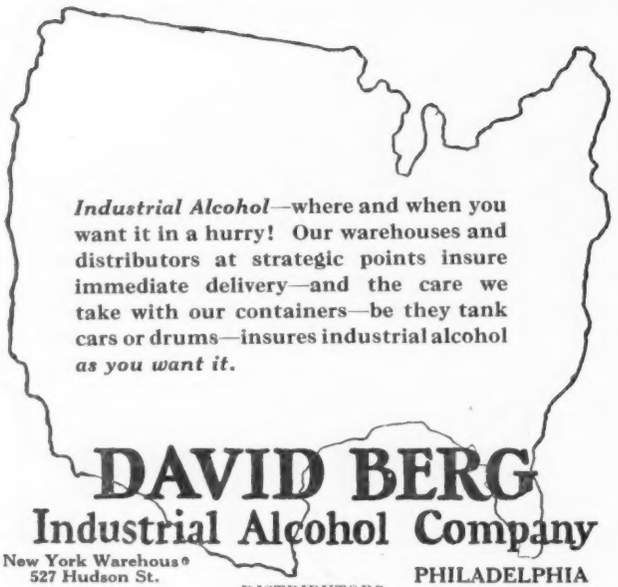

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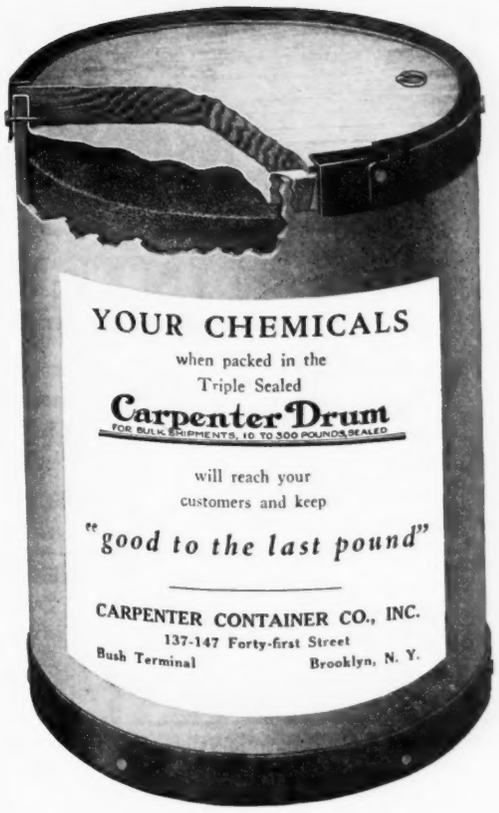

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"WE"—Editorially Speaking

All good editors from Moses to Arthur Brisbane have constantly abused "we", accordingly we feel that the customary apologies to Col. Lindbergh and The Spirit of St. Louis, are quite out of order.

Seventeen years ago the word "research" was so fearful to all good industrialists that when J. George Frederick resigned his editorship of "Printers Ink" to start the first commercial research service in America he dared not use it. Lest he frighten off clients he called his organization The Business Bourse. Since then while the cash value of commercial research has been winning recognition, Mr. Frederick has been establishing his reputation as a business analysist; and out of his wide experience has recently come a notable book, "Corporate Consolidations." His article in this issue on the inner workings of the international cartel is written especially from our chemical point of view, and is full of experience gained on his little journey of economic investigation last summer to the leading industrial countries of Europe.

No branch of the American chemical industry has ever been more knocked-about by new competition than the wood distillers and the criticisms, as destructive as their own distillation process, which were hurled at them for neglecting research have been generally a gratuitous insult added to a serious financial injury. Several months ago, Mr. Cedarquist, the Swedish wood distiller, in CHEMICAL MARKETS, made the constructive suggestion that the by-products lurking in wood tar were worthy of the consideration of American manufacturers,—a thought which Dr. Hawley of the Forest Products Laboratory expands in this issue.

H. G. Wells wrote recently, "A man who rouses my curiosity greatly is Sir Alfred Mond. He is difficult to talk to, nervous, and either aggressive or defensive. I would give much to know what is his real philosophy and if, fundamentally, he is anything coherent and determined." Many a man in the American chemical industry, not only because of Sir Alfred's dynamic personality, but also because of his position as chairman of Imperial Chemical Industries, Ltd., must often have expressed that wish, and a statement from this commanding figure of the plans and policies of the British consolidation has at this time especially a very peculiar meaning to us.

CARTEL CHARTS

Reprints of the four-page charts on the "Organization and Products of the European Cartel" may be obtained at the following prices: Ten cents each, five for 25c, 50c a dozen and $2.00 a hundred.

Reprints of other articles, when available, at the same prices.

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So many readers want for reference or can use in various other ways quantities of reprints from our special articles, that we are glad that they have forced us to institute a special reprint service. Note the announcement at the head of the middle column. Please place your orders promptly as the type matter can only be held ten days after publication and once it is distributed reprints cannot be made at these low prices.

If, as William James said, the purpose of a book is to make thoughts swarm, Mr. De Long's article thoroughly deserves the head of the column, in this issue which is devoted, in the main, to the various problems of tariffs and cartels.

February Features

Various aspects of container and shipping problems receive special attention on next month's issue:

Traffic Problems by H. M. Mabey.

Bags as Containers, by Homer V. Howes.

Tank Wagon Delivery by C. L. Brand.

Special Transport Containers by L. A. Belding.

Shipping Gases by T. E. Cooper.

and

Seven other signed feature articles.

In February two new regular exclusive departments will be added to CHEMICAL MARKETS.

Our eyes have been focused on chemical Europe by the astonishing technical and industrial developments in Germany, France, and England; by the stories of all sorts and conditions of gigantic chemical combinations; so that we are too easily apt to forget the stunning chemical expansions that are, almost unnoticed, taking place in other countries. We propose to review these developments in the smaller European countries and have invited a leading chemical industrialist in each nation to set forth in our pages a summary of his country's chemical progress. Many of our readers will be astonished, we are sure, at the production of chemicals reported for Poland by Mr. Trepka. Next month the Italian chemical industry will pass in review in our pages.

CHEMICAL MARKETS has always been the leader in this field in the matter of revising the arrangement of prices and market sections to enhance the readers interest.

The change made in this issue in the manner of presenting "Prices Current" has been made only after due deliberation and consideration of the wishes and requirements of the chemical and allied industries. In this revision we have again reverted to the system of listing prices in their strict alphabetical order, with the exception of the oils and fats section which, because of its somewhat individual nature, should rightly be listed in a separate section.

Also we have undertaken to list the price of each commodity as of July 1914—just prior to the War, high and low range for the previous and current years as well as the current range. In this manner the reader is given at one glance a composite picture of the movement of each item during the three periods of most interest to present business. In addition at the head of each page will be found the purchasing power of the dollar on the basis of the value prior to the War.

A somewhat similar step has been taken in compiling the stock and bond tables on the financial pages. In listing currant bid and asked prices, high and low for the two previous years, total sales for the previous month and year, date of maturity, interest and the amount of the original offering, a complete record of stock information is presented to the industry.

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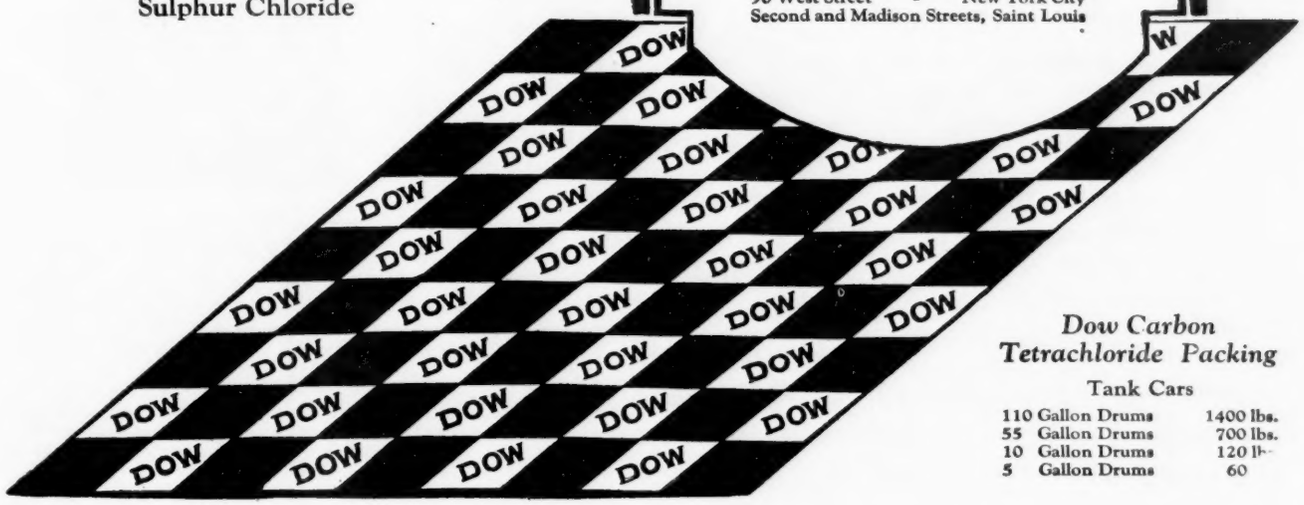

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